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MOUNDS NEAR MOUNDVILLE, ALA.

Scale in feet

0 50 100 500
1905

Moundville Revisited

Crystal River Revisited

Mounds of the Lower Chattahoochee and
Lower Flint Rivers

Notes on the Ten Thousand Islands, Florida

BY

CLARENCE B. MOORE.

PHILADELPHIA

1907.

MOUNDVILLE REVISITED.

BY CLARENCE B. MOORE.

In the season of 1905 we conducted an investigation in the mounds and cemeteries near Moundville,¹ Ala., which place, near the Black Warrior river, is but a few miles distant from the city of Tuscaloosa. Later, we published an account² of our work at Moundville.

At the time of this investigation a comparatively small, but seemingly desirable, part of the plateau was not dug into by us on account of the advanced state of the cotton which had been planted upon it. To explore this portion, and to do additional work in other parts investigated by us before, we returned to Moundville in November, 1906, with the cordial approval of Messrs. Hardy Clements of Tuscaloosa, and C. S. Prince of Moundville, owners of the mounds and cemeteries near Moundville, with whose consent our previous work had been done.

As what we considered a thorough investigation of the mounds had been made at our first visit, we devoted but little time to them on our return—digging into none of them with the exception of Mound Q. This mound had been well covered with trial-holes without result. But as it had on its summit plateau dark, rich soil to a considerable depth, and as in soil of this kind burials usually are present and because, in the material thrown out from a trial-hole, one of our diggers had found a small ornament of sheet-copper, we decided to give the mound another trial.

On our second visit, the summit plateau of Mound Q was fairly riddled by us with trial-holes. Our former judgment was confirmed.

A plan of the Moundville mounds, prepared by Dr. M. G. Miller, who has had charge of the anatomical part of all our investigations, accompanies this report, for the literary revision of which, and of the other papers in this volume, we are indebted to Mr. F. W. Hodge.

Somewhat less than one month was spent by us at Moundville on our second visit, with a force of from ten to sixteen men to dig. Every part of the great plateau in the neighborhood of the mounds, which seemed to offer any chance for results, was dug into by us. In many instances no burials were found; in others burials widely apart were encountered with which were no artifacts. In a few localities our work was rewarded.

¹ Formerly called Carthage and so spoken of in Pickett's "History of Alabama"; Thruston's "Antiquities of Tennessee"; *et al.*

² "Certain Aboriginal Remains of the Black Warrior River." Journal of the Academy of Natural Sciences of Philadelphia, Vol. XIII.

While, beyond question, objects of interest must yet lie buried at Moundville, it is our belief they are widely scattered—too widely so to warrant sustained investigation. At all events our work at this interesting place is, in all probability, ended.

At our former visit to Moundville, no urn-burials were met with. At our second investigation, however, two were encountered which, later, will be more fully described. One of these lay at a depth of about four feet among undisturbed burials of other kinds, and surely was contemporary with these prehistoric interments.

On our first visit, no human remains were recovered entire.

On our second visit, some bones in somewhat better condition were found, owing, perhaps, to the fact that most of our successful work was done in the ground south of Mound D, which is a narrow plateau having deep gullies on two sides, which possibly are conducive to better drainage. However, a number of bones, including one skull, came from localities at Moundville other than the one we have named.

Two skulls were recovered intact. One of these is now in the collection of the Academy of Natural Sciences of Philadelphia (catalogue number 2233). The other skull is at the United States Army Medical Museum, Washington, D. C., and has been reported on by Dr. Aleš Hrdlička as follows:

“The skull which you wished me to examine, marked ‘Field near Md. M., Burial No. 57, Moundville, Alabama,’ and preserved in the Army Medical Museum, shows the following features:

“The cranium is that of a young female adult. It presents a slight and mainly postparietal, accidental (cradle-board), compression.

“The specimen shows plain Indian features. Its consistency and good state of preservation of some of the more delicate bones, suggest but a moderate antiquity. In type it approaches the form that was common to the tribes of the southeast and those of later arrival speaking the Creek language. It is impossible to compare it with the Alibamense or other old tribes in Alabama, on account of lack of material: there are in the National Museum collection but four skulls from the State, and all these show artificial, ‘flat-head,’ deformation, which obscures the cranial type.

“Detailed Description and Measurements:

“The specimen shows average Indian features in almost every particular. The capacity is 1380 c. c., which indicates in a female a fair sized brain. In shape it is mesocephalic (cephalic index 78) and high (basion-bregma height 14.3 cm.), but a slight shortening and augmentation in height is due to the occipital compression. The face presents a moderate alveolar prognathism, such as is usual among the Indians. The various ridges and processes indicate moderate muscular development. The sutures are all quite simple, and contain but three small Wormian ossicles (all in the lambdoid); those of the vault show no trace of occlusion. The base exhibits rather small middle lacerated foramina, but a slight depression of the

petrous parts and rudimentary styloids—all characteristic Indian features. The nasal aperture is mesorhinian (index 50.), the mean index of the two orbits is mesoseme (87.), neither of which is exceptional. The teeth are of moderate size and normal form, but both of the third molars are congenitally absent.

“Measurements :

“Diameter antero-posterior max.	17.5 cm.
“Diameter lateral max.	13.65 “
“Facial height (alvion-nasion)	6.95 “
“Facial breadth (d. bizygomatic max.)	13.25 “
“Upper Facial Index	52.5
“Height of nose, 4.8 : breadth max., 2.4 cm.;	
“Height of right orbit, 3.2 ; of left, 3.3 cm.;	
“Breadth of right orbit, 3.8 ; of left, 3.7 cm.;	
“Maximum circumference of skull above supraorbital ridges, 49.2 cm.;	
“Nasion-opisthion arc 35.3 cm.;	
“Thickness of left parietal 4–6 mm.	

“I trust the above report will prove of some utility. It should be kept in mind that, except under very special circumstances, an examination of a single skull is of little significance and not fit to base any important conclusions upon.”

On our first visit a fragment of a skull showed moderate artificial flattening. Many other smaller fragments gave no evidence of this treatment.

A small number of fragmentary skulls, found at the time of our second visit, showed the effect of moderate cranial compression ; while a far larger number of fragments evidently belonged to normal skulls.

During our first investigation, fragments of human remains were found presumably bearing traces of the effects of a specific disease.¹ At our second visit many bones were found, sometimes a number belonging to one skeleton, showing such decided lesions that all these remains were carefully put aside and, later, were given by us to the United States Army Medical Museum.² The result of investigation at that institution has kindly been reported to us as follows :

“Dr. James Carroll, First Lieut. and Asst. Surgeon, U. S. Army, Curator Army Medical Museum,

“Sir :—

“In accordance with your instructions I have the honor to report that the lot of bones from mounds at Moundville, Ala., contributed by Mr. Clarence B. Moore, comprised about 70 pieces, some of them rather fragmentary. Of these 70,

¹ William C. Mills, M.Sc., found a large number of syphilitic bones in the Baum prehistoric village site, Ohio. “Explorations of the Baum Prehistoric Village Site,” Fifteenth Annual Publication Ohio State Archaeological and Historical Society.

See also “*Der Ursprung der Syphilis (Morbus Americanus)*.” *Internationaler Amerikanisten-Kongress*, Stuttgart, 1904. “*Der Ursprung der Syphilis*,” Jena, 1901 ; both by Dr. Iwan Bloch.

² With these bones were sent certain reunited fractures and some normal bones belonging to skeletons showing abnormalities.

fifty show the usual conditions found in bone-syphilis, such as periosteal nodes, especially along the crest of the tibia, irregular erosions, scleroses and necroses of long bones, erosions of calvarium as from gummata; many bones of the same skeleton being affected. I do not think there can be any doubt that these bones are from cases of syphilis.

“Some other bones of the lot show exostoses of uncertain origin; the remainder are either normal or show fractures more or less healed.

“Very respectfully your obedient servant,

“D. S. Lamb, Pathologist.”

Among hundreds of objects found by us during both our visits to Moundville, not one, either as to material or in method of treatment, gave any indication of other than purely aboriginal provenance, and it is our belief, as well as that of eminent archaeologists who have examined the artifacts from Moundville, that the occupancy of the site was prehistoric.

The art of Moundville is homogeneous. The same classes of objects were found there with human remains whose only trace was a black line in the soil, as were encountered with better-preserved skeletons. Not only, as we have said, did we fail to find at Moundville a single object denoting European contact, but there is no report of any such having been met with there throughout years of cultivation. It is well known to mound-investigators what importance is attached by inhabitants of a place to the discovery of any object of intrinsic value, be that value ever so small. The finding of a bead of gold or of a cross of silver causes more talk than would a whole collection of aboriginal objects of stone. At Moundville, among whites or blacks, no rumor as to precious metals is current, though on all sides one hears reports of the discovery of pipes of stone, of objects of shell and the like—reports which in justice to the tactful and intelligent people of Moundville we must say almost invariably proved correct.

HUMAN REMAINS.

NEAR MOUND A.

At the time of our former visit, some work was done in the level ground near the western side of Mound A, resulting in the finding of a number of skeletons not associated with artifacts of any sort.

This time, there being no interference on account of growing crops, as was the case before, we devoted eight hours to the locality, with an average of fifteen men, making trenches and trial-holes. Ten burials were encountered, consisting of eight skeletons at full length upon the back; an aboriginal disturbance; and a single skull. The burials, which were from one to three and one-half feet in depth, had no accompanying artifacts, with the exception of one skeleton with which were a bowl and a water-bottle.

GROUND NORTHEAST OF MOUND C.

The ground lying to the northeast of Mound C was considerably dug into by us at the time of our first visit.

On our second visit much additional digging resulted in the discovery of seven skeletons of adults, lying at full length on the back; one lying on the left side, partly flexed; one aboriginal disturbance; one skeleton of an infant or of a very young child; one of an adult, at full length on the back, the upper and lower parts being separated by a space of two feet.

A few comparatively uninteresting vessels were found with the remains.

GROUND SOUTH OF MOUND D.

We investigated to a certain extent at the time of our first visit the narrow strip of land between two deep gullies south of Mound D, which is shown in the plan of the mounds.

This time, in addition to numerous trial-holes all over the ground to the north, as well as to the south of Mound D, a part of the area, 172 feet long, with a maximum width of 46 feet (see plan, Fig. 1), was dug through by us to undisturbed ground below. This work required from ten to sixteen men to dig, with three men to oversee, for more than ten days of eight working hours each, a certain part of this time, however, being occupied in refilling.

The ground, dark with organic matter, evidently an accumulation during long occupancy, had an average depth of about 2.5 feet, when undisturbed yellow clay was reached. Into this clay grave-pits had been dug in places. In other instances burials had been made in the accumulated soil above the clay. The limits of the graves in the soil above, and in some instances of those in the clay, were not determinable owing to the constant digging and redigging for burial that had gone on in ancient times, grave cutting through grave, rendering impossible exact delimitations, and at the same time creating sad havoc to skeletons and to pottery. In our enumeration of burials we shall call such as suffered in this way aboriginal disturbances, where considerable parts of the skeleton remained, but shall take no note of single bones scattered here and there, of which there was a great abundance.

During our digging south of Mound D, 174 burials were encountered by us, as follows:

Adults full length on the back,	79
Adolescents full length on the back,	12



FIG. 1.—Plan of ground near Mound D, showing excavation.

Adults lying on the right side, the limbs partly flexed,	4
Adults lying on the left side, the limbs partly flexed,	4
Adult closely flexed on the back, the knees drawn to the chest.	1
Adult extended to the knees from which the legs flexed downward,	1
Children and infants,	19
Child in sitting position with knees turned to left at an angle of forty-five degrees,	1
Urn-burials of infants,	2
Aboriginal disturbances,	47
Disturbed by our diggers,	2
Not determined on account of decay,	1
Not determined,	1
This last skeleton lay in soil so hard that it was impossible to uncover it except piece-meal.	

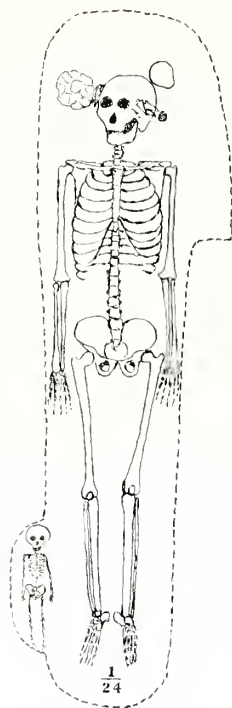


FIG. 2.—Burials numbers 40 and 41. Ground south of Mound D.

Burials numbers 40 and 41, an adult and infant (Fig. 2), both fully extended on their backs, lay in a grave together. The grave, the base of which was 4.5 feet from the surface (an exceptionally great depth for an aboriginal interment at Moundville), extended about 1.5 feet into the hard clay, above which was the dark earth made by aboriginal occupancy, 3 feet in depth at this point.

That part of the grave which was in the clay was sharply defined and was filled with yellow sand. No sand was encountered by us elsewhere in our work on this strip of ground, though similar sand is found in a neighboring field.

It was impossible, owing to the number of aboriginal disturbances, to determine from what level the grave was begun—whether from the original level, that is to say the surface of the clay, or from some stage in the period of formation of the artificial soil, or from the present level of the ground.

That part of the grave which lay in the hard clay was, as we have said, sharply defined, the sides being clearly cut and perpendicular. The length was 7 feet 4 inches; the breadth varied from 1 foot 4 inches to 2 feet.

On the lower right-hand side was an offset in which the infant's skeleton lay. Another offset was on the opposite side, but at the other end of the grave. Nothing was found in this offset, though presumably it was made for a purpose and perhaps originally contained objects of a perishable nature.

By the side of the skull of the adult skeleton, which lay almost due east and west, the head being directed toward the east, were a broken water-bottle and a cup-shaped vessel. In the sand near the left-hand side of the skull was an ear-plug of wood, copper-coated, badly decayed. In contact with each temporal bone were several pendants and parts of pendants of sheet-copper.

In another part of the ground, four feet down, 1 foot 3 inches of which were in solid clay, was an inverted bowl 13.5 inches in diameter. This bowl, a part of which was crushed, covered from the head to the waist the skeleton of a small infant. The leg bones, which were missing, probably had extended beyond the bowl and had been cut away without discovery by our digger. With the skeleton were small shell beads, and below it was a large mussel shell (*Quadrula boykiniana*¹), the concave side uppermost, which may have contained some perishable offering.

About 6 inches below the surface was a bowl 14 inches in diameter and about 6 inches deep, resting on its base. Within were a few decaying fragments of bone, apparently having belonged to the skeleton of a very young infant.

Above this bowl was another bowl, or a large part of another one, badly crushed.

The presence of urn-burials at Moundville was not a surprise to us, inasmuch as this form of burial was practised along the Alabama and Tombigbee rivers, though it is remarkable that but two instances were encountered by us in all our digging at Moundville.

FIELD EAST OF MOUND G.

In the field east of Mound G twenty-nine trial-holes were sunk, and two burials without associated artifacts were encountered.

FIELD NEAR MOUND M.

Not shown on our plan of the mounds is a great field outside the circle, which was not investigated at the time of our first visit as the cotton growing upon it was then too far advanced to be disturbed. In this field, 325 feet WSW. from Mound M, is the remnant of a conical mound of clay.

Our work at this place, in addition to many trial-holes in all directions, was continued for two days with a force of twelve men, beginning 65 feet in a northerly direction from the base of the remnant of the mound to which reference has been made.

Fifty-nine burials were encountered, none differing in form from those described as coming from the ground south of Mound D.

At this place some burials seem to have been made in the underlying clay, while others were in pits evidently put down from the surface. With the deeper burials no artifacts were found, and but few—all purely aboriginal—were with the other burials.

At this place, as elsewhere, a number of bones showing a specific disease were present. No determination could be reached as to the condition of the deeper bones owing to their advanced stage of decay.

¹ All determinations of shells in this and accompanying papers have been made by Dr. H. A. Pilsbry and Mr. E. G. Vanatta, of the Academy of Natural Sciences of Philadelphia.

FIELD WEST OF MOUND N.

The digging in the field west of Mound N consisted of twenty-seven trial-holes put down in the immediate neighborhood of the mound.

Eight burials were encountered, of which but one had associated objects.

GROUND NEAR NORTHERN SIDE OF MOUND Q.

Some digging was done by us at our former visit, in the level ground near the northern side of Mound Q, resulting in the finding of skeletons without artifacts in association.

Additional work on our second visit yielded four skeletons, all lying at full length on the back, having no associated objects.

FIELD WEST OF MOUND R.

This tract, connected with the great field which is surrounded by the mounds, lies outside the circle, to the westward of Mound R. It was investigated by us to some extent at the time of our first visit.

On our second visit, two and one-half days were spent putting down trial-holes and trenching in this place, with an average force of ten men.

As the fifty-eight burials we found here differed in no material respect from the interments encountered in the ground south of Mound D, they will not be particularly described although exact details of their occurrence, as indeed of all we found at Moundville, are included in our field notes.

The association of two of the burials was striking. Burial No. 25, the skeleton of an adult, lying on the left side with the legs somewhat drawn up, had, resting on the left arm, the skeleton of an infant.

At this place were graves in the red clayey sand underlying the clay of the field, which was discolored with organic matter. Some of these graves were 5 feet below the present surface, and did not seem to be connected with it. Other and shallower graves, filled with material extending down from the surface, also were present.

In the deeper graves no artifacts save shell beads were present with the burials, all other objects found being in the shallower graves. All these objects, however, were purely aboriginal and of the same character as those found in other mounds and cemeteries of Moundville.

Several other places, after considerable digging, yielded single skeletons.

POTTERY.

The pottery of Moundville, as we have said in our former report, varies little in form, being confined mainly to the bottle, the pot, and the bowl. The engraved designs on the pottery are its main feature of interest.

As we found to be the case before, earthenware vessels, when present, as a

rule lay near the head of skeletons, though there were exceptions to this, some of them caused by disturbance of the graves in aboriginal times in making other interments.

Much of the ware (which is shell-tempered) is covered with a glossy, black coating, sometimes of great beauty. In our former report we said that this coating was not produced by the heat in firing the clay, and it is true that the direct action of heat upon clay would produce no such result. Presumably, however, the coating was obtained in the manner described by Holmes¹ as practised by the Catawba Indians, where the vessel, surrounded by bark, is covered by an inverted receptacle during the firing process. Bark burning in the confined space in which the vessel was would certainly yield considerable quantities of tar which first would condense on the sides of the vessel, and, being in a liquid state, would penetrate the porous material to some extent, subsequently being carbonized by further heating.

On our second visit to Moundville many vessels or large parts of vessels were found, some in many fragments. Such fragmentary vessels have been cemented together, and, where a part is missing, have been restored with a material somewhat differing in shade from the vessel, that our work and that of the maker of the ware may not be confused.

The number of vessels (many of which were badly crushed) found by us at our second visit, is as follows:

Near Mound A.	2
Ground northeast of Mound C.	5
Ground south of Mound D.	114
Field near Mound M.	9
Field west of Mound N.	2
Field west of Mound R.	28

In describing the Moundville pottery, we shall confine ourselves to the more noteworthy pieces, the commoner types having received sufficient attention in our former report.

In figuring pottery—and in fact all objects in this report—reduction in size is linear. Diagrams of the engraved decoration on the vessels are not absolutely exact as to size, owing to the difficulty of representing a curved design on a flat surface; otherwise they are essentially correct.

Dissociated in the soil were various effigies of heads, broken from earthenware vessels. These heads are mainly of birds, but they include also the head of a fish and one of an alligator.

There were also found in the digging many discs made from parts of earthenware vessels, three with central perforations.

One mushroom-shaped object of earthenware was unearthed, lying near the head of a flexed skeleton,—perhaps a modeling tool, as described by Thruston and Holmes.

¹ W. H. Holmes, "Aboriginal Pottery of Eastern United States," 20th An. Rep. Bur. Am. Ethn., p. 55.

Burial No. 39, the skeleton of an adult, lying on the left side and partly flexed, had, near the legs where perhaps it had been thrown by an aboriginal disturbance, an ear-plug of earthenware, shown in Fig. 3.

We shall now describe the more noteworthy vessels in detail, the ware being black in every instance, unless otherwise specified.

Vessel No. 2 from the field west of Mound R, is a bowl of coarse ware, of about one gallon capacity. Around a short neck, first upright and then slightly flaring, are eight loop-handles. The inside is decorated with bright red paint.



FIG. 3.—Ear-plug of earthenware. (Full size.)

Vessel No. 32 from the ground south of Mound D, is a small water-bottle having engraved upon it the well-known Moundville design of the open hand and eye.¹ In this instance the hand, which is shown five times, points downward as in the case of the next two vessels described.

Vessel No. 8 from the field west of Mound R, is a small bottle of fine, yellow ware, having the design of the hand and eye six times represented.

Vessel No. 27 from the ground south of Mound D, a cup, has this same design six times shown around the body of the vessel and once on the base.

Vessel No. 22 from the ground south of Mound D, a small pot of coarse, yellow ware, with two loop-handles and, on two opposite sides as decoration, a very rudimentary animal form.

Vessel No. 61 from the ground south of Mound D, is a small effigy-vessel representing a frog. Two larger vessels of this kind will later be particularly described and figured.

Vessel No. 5 from the ground south of Mound D, is a small bowl with a notched band around the rim and three equidistant, rudely modeled effigies of human heads, projecting upward. A fourth head is missing.

Vessel No. 76 from the ground south of Mound D, is a bowl, elliptical in outline (with part of the side missing), which has represented a fish. The tail is present, as are a notched ridge on one side for the spines, and projections on the other side for the ventral fins. The head is lacking through aboriginal breakage, and the projection left by it has been carefully smoothed and rounded by the aborigines.

Vessel No. 7 from the ground south of Mound D (Figs. 4, 5), presents a beautiful decoration which is four times shown. In the center of each design is a swastika within two concentric circles. Enclosing these are four series of three fingers each, representing the four directions. A band of cross-hatched design encircles the body of the vessel; with which band four equidistant, perpendicular bands, also cross-hatched, form the sign of the cross, or the four directions. Series

¹ For the symbol of the open eye on the open hand, in ancient Mexico see "*Altmerikanischer Schmuck und soziale und militärische Rangabzeichen*," Prof. Dr. Eduard Seler. *Gesammelte Abhandlungen*, Fig. 99, pp. 569, 579.



FIG. 4.—Vessel No. 7. Ground south of Mound D. (Height 5.8 inches.)

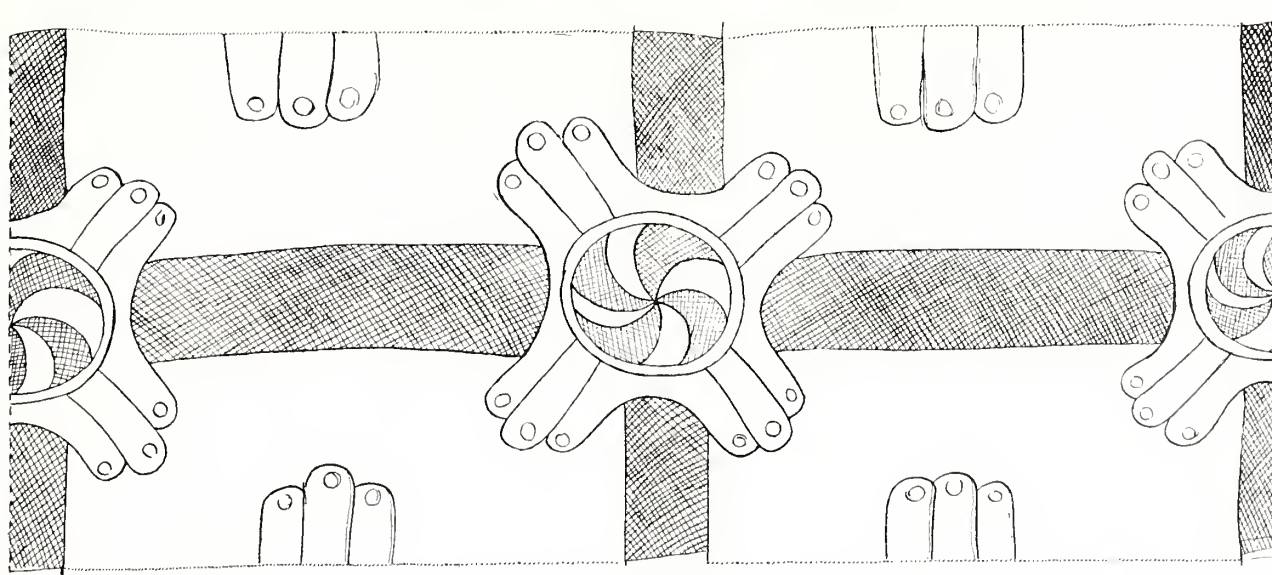


FIG. 5.—Vessel No. 7. Decoration showing swastika, cross of the four directions, and perhaps symbols for "above" and "below." (About two-thirds size.)

of three fingers point downward in the upper spaces enclosed between these bands, while similar series point upward in the lower spaces.

We know the ancient Mexicans¹ had six world-“quarters” which, in addition to the four cardinal points, included “above” and “below”; and that descendants of ancient Mexicans, the Huichol Indians,² have the six world-“quarters” also, as do certain tribes of Pueblo Indians of southwestern United States, including the Hopi³ and Zuñi—as well as other Indian tribes.⁴

Doubtless the six world-“quarters” were recognized by the aboriginal occupants of the Moundville region, but whether they are represented on this vessel, the cross standing for the four directions (as it undoubtedly does), and the upturned fingers for “above” and the downturned ones for “below,” is another question. It is likely the fingers in the spaces are simply a duplication in the design—a method often followed in the decoration of ancient pottery. Moreover, there are vessels from Moundville on which fingers are shown, which do not seem to carry out the idea of the six world-“quarters.” A woodpecker design has downturned fingers in addition, but no upturned ones. Another vessel with a cross showing eight directions is without the upturned fingers, though the downturned ones are present.

On the other hand there is a vessel (all we are referring to now we found on our first visit) with the design of the double-headed woodpecker, the heads pointing in two directions, the tails in two other directions, thus making the cross of the four directions. In addition, series of fingers point upward and downward, thus indicating the six directions, although we may not accept the idea that it was the intention of the aborigines to do so.

In a word, it may be that either the aborigines at the beginning intended to represent the six directions in the way we have described, and later made use of parts of the symbol for decorative purposes, or, on the other hand, they never intended to represent “above” and “below” by upturned and downturned fingers, and that when these are shown, they were borrowed merely to fill space in the design, and were taken from the cross of the four directions, which often, at Moundville, was made up of four series of three fingers each, pointing in different ways.

The swastika was abundantly represented at Moundville; sometimes cut or *repoussé* in copper, sometimes engraved on earthenware; and doubtless the natives of the Moundville region often used this emblem embroidered on fabrics and painted on wood or on hide. Ranjel, DeSoto's secretary, tells how the great cacique of Tascaluça (Tuscaloosa), whose home was in the Moundville region, had before him always “an Indian of graceful mien holding a parasol on a handle,

¹ “*Codex Vaticanus B.*” First half. Elucidated by Prof. Dr. Eduard Seler, pp. 67, 71, 242.

² Dr. Carl Lumholtz, “Symbolism of the Huichol Indians,” *Mem. Amer. Mus. Nat. Hist.*, Vol. III, p. 14.

³ Dr. J. Walter Fewkes, “Hopi Shrines near the East Mesa, Arizona,” *Amer. Anthropologist*, April-June, 1906, p. 357.

⁴ “Handbook of American Indians,” article “Color Symbolism.”

something like a round and very large fly-fan, with a cross similar to that of the Knights of the Order of St. John of Rhodes, in the middle of a black field, and the cross was white."¹

Though the accounts given by the chroniclers of the DeSoto expedition differ as to this banner, yet if we follow the description of Rangel, an eyewitness, it is no hard task to recognize the swastika emblazoned on the standard of Tuscaloosa,² for although there is some difference in form between the swastika and the cross of the Knights of St. John, yet it is probable, as their cross was white on a black ground, like that of Tuscaloosa, that Rangel gave more attention to this striking feature than to mere details of shape.

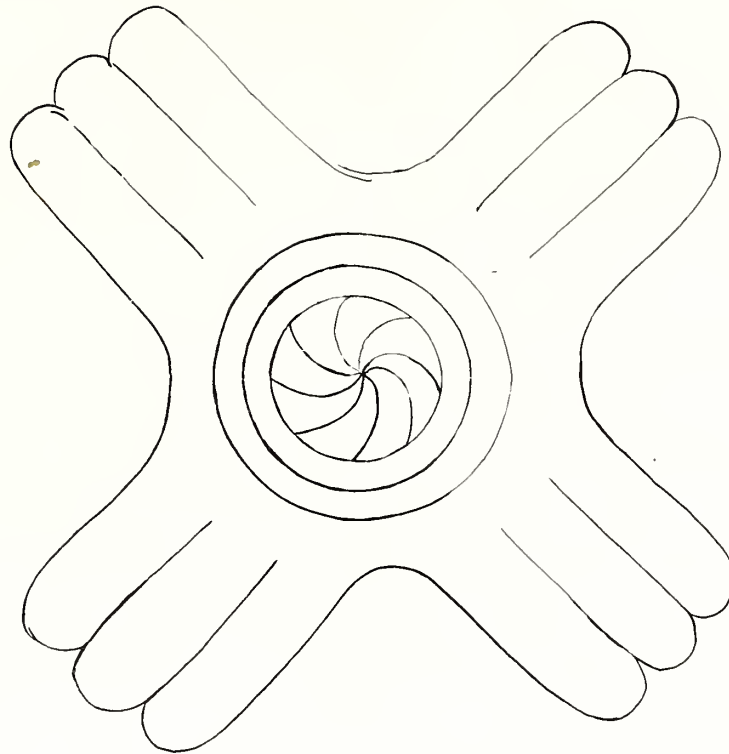


FIG. 6.—Vessel No. 28. Ground south of Mound D. Decoration showing swastika and also cross of the four directions. (About half size.)

Vessel No. 28 from the ground south of Mound D. is a cup having a rather faint decoration (Fig. 6) on the base, a swastika within three concentric circles; and

¹ "Narratives of DeSoto." Vol. II. "Relation of Rangel," translated by Prof. Edward Gaylord Bourne, page 121. The paragraph is from Oviedo's "*Historia General y Natural de las Indias*," Vol. I, p. 567.

² The town, the province, and the cacique bore the same name. Theodore Irving, "Conquest of Florida," Vol. II, p. 34.

Tascaluga is correct Creek for "Black Warrior." T. H. Lewis, "Spanish Explorers," "Expedition of DeSoto," p. 186.



FIG. 7.—Vessel No. 54. Ground south of Mound D. (Height 4 inches.)

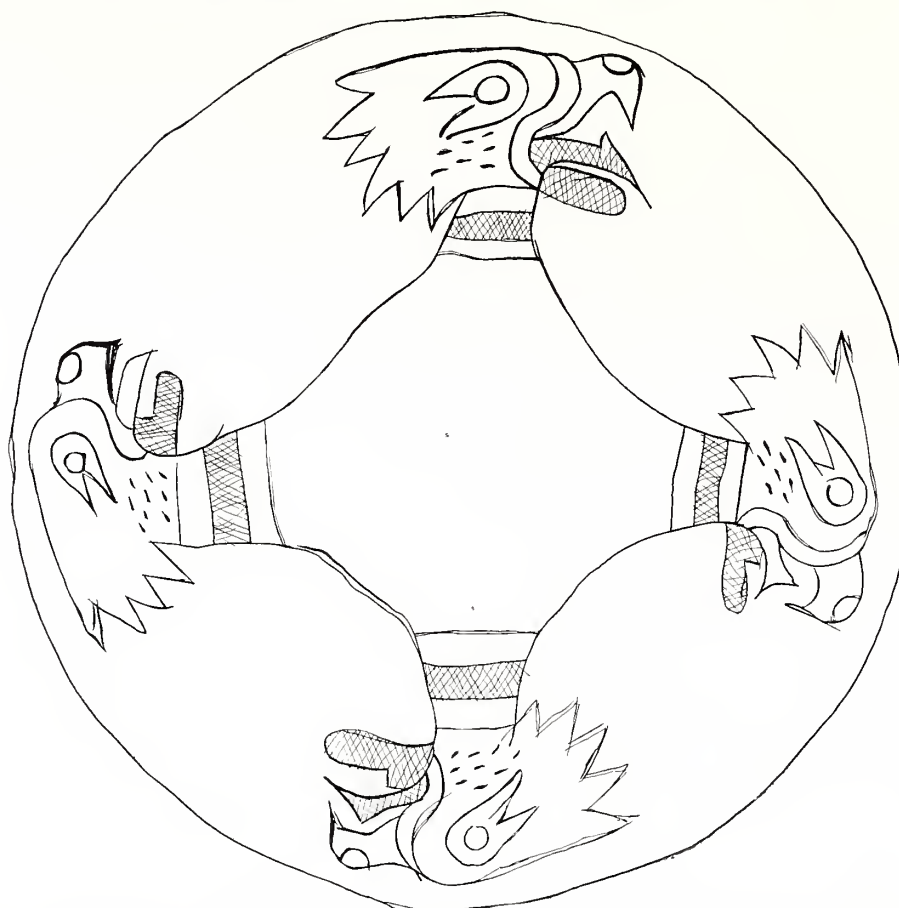


FIG. 8.—Vessel No. 54. Decoration showing cross with eagles' heads forming a swastika. (About half size.)

the cross of the four directions, the arms made up of series of three fingers each, extending up the sides of the vessel.

Vessel No. 54 from the ground south of Mound D, is a bottle (Figs. 7, 8) having a beautiful and unique decoration made up of a cross on the base, which, with the addition of eagles' heads on the sides of the vessel, forms a swastika.

Vessel No. 71 from the ground south of Mound D, a broad-mouthed water-bottle (as were so many of the vessels found at Moundville), has for decoration an



FIG. 9.—Vessel No. 71. Ground south of Mound D. (Height 6.7 inches.)

eagle's head and the open hand and eye, alternating each four times (Fig. 9). The pointed projections extending behind the eagle's eye are two in number in two opposite heads, and three in the other two.

Vessel No. 18 from the ground south of Mound D, is a bottle (Figs. 10, 11) having an engraved design showing the head, two wings, and tail of a bird, presumably—as fangs, teeth, and rattles are absent. The crest is unlike that of the woodpecker and, possibly, the head was designed to represent that of the eagle. It may be, however, the serpent-bird was intended.

Vessel No. 15 from the ground south of Mound D, a bottle (Fig. 12), has the design of the cross of the four quarters, four times represented.

Vessel No. 45 from the ground south of Mound D, a cylindrical vessel (Figs. 13, 14), bears a rather coarse, incised design twice represented, one being somewhat larger than the other.



FIG. 10.—Vessel No. 18. Ground south of Mound D. (Height 6.2 inches.)

Vessels No. 11 and No. 82 both from the ground south of Mound D, and vessel No. 2 from the field near Mound M (Figs. 15, 16, 17, 18, 19), all with meander

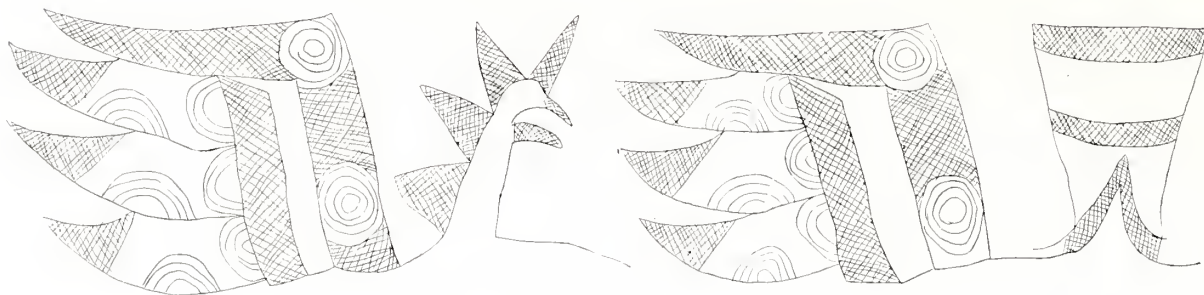


FIG. 11.—Vessel No. 18. Decoration. (About one-third size.)

decoration, are fair examples of the commoner designs present on Moundville pottery.



FIG. 12.—Vessel No. 15. Ground south of Mound D. (Height 3.75 inches.)



FIG. 13.—Vessel No. 45. Ground south of Mound D. (Height 4.6 inches.)

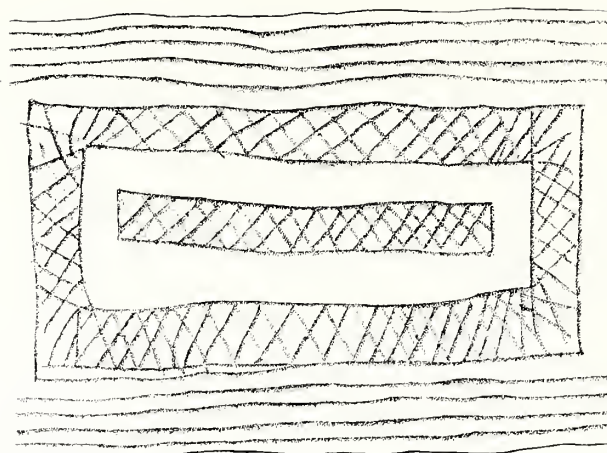


FIG. 14.—Vessel No. 45. Decoration. (About half size.)



FIG. 15.—Vessel No. 11. Ground south of Mound D. (Diameter 5.3 inches.)



FIG. 16.—Vessel No. 11. Decoration. (About one-third size.)



FIG. 17.—Vessel No. 82. Ground south of Mound D. (Height 5 inches.)

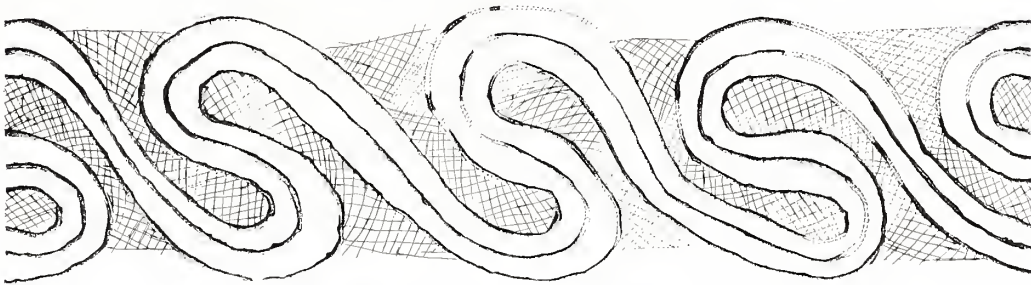


FIG. 18.—Vessel No. 82. Decoration. (About one-third size.)



FIG. 19.—Vessel No. 2. Field near Mound M. (Height 4.75 inches.)

Vessel No. 18 from the field west of Mound R, is a bottle (Fig. 20) with a painted design showing a skull or conventionalized head, and an open hand—each being present three times on the vessel. Painted decoration evidently was not in vogue at Moundville, as but three vessels so decorated have been found by us there. Holmes¹ describes and figures a bottle from Mississippi, with painted design almost



FIG. 20.—Vessel No. 18. Field west of Mound R. Painted design showing head or skull, and open hand. (Height 5.3 inches.)

exactly similar to ours, while Thruston² also shows one from Tennessee bearing the same general characteristics. The coloring on the Moundville specimen is light yellow on a ground of brown. The design, though plainly distinguishable, has become somewhat dimmed through lapse of time.

¹ "Aboriginal Pottery of Eastern United States," 20th An. Rep. Bur. Am. Ethn., Plate LVI, b and c, and page 106.

² Gates P. Thruston, "Antiquities of Tennessee," p. 136.

Vessel No. 20 from the ground south of Mound D, a bottle (Fig. 21), has a painted design, four times shown, originally red, no doubt, but now a dingy brown, which has the same shape as many of the sheet-copper pendants found at Moundville, which bear excised parts forming a swastika. In this instance, however, the excised triangle commonly seen on these pendants is absent.

An object of earthenware from the field near Mound M (Fig. 22) is included by us among pottery vessels, though we are unable to say what use it originally served.



FIG. 21.—Vessel No. 20. Ground south of Mound D. Painted design showing swastika. (Height 5.3 inches.)



FIG. 22.—Object of earthenware. Field near Mound M. (Height 6.2 inches.)



FIG. 23.—Vessel No. 106. Ground south of Mound D. (Height 2.6 inches.)



FIG. 24.—Vessel No. 103. Ground south of Mound D. (Height 5 inches.)

Vessel No. 106 from the ground south of Mound D (Fig. 23), has a curious marginal decoration of the "wall of Troy" pattern.

Vessel No. 103 from the ground south of Mound D (Figs. 24, 25), is a bottle bearing an incised decoration, the interpretation of which is entirely beyond our power. But as "no savage ever sat down to decorate an article from mere fancy with meaningless designs,"¹ this apparent confusion of line-work must stand for something, and may be interpreted some day.

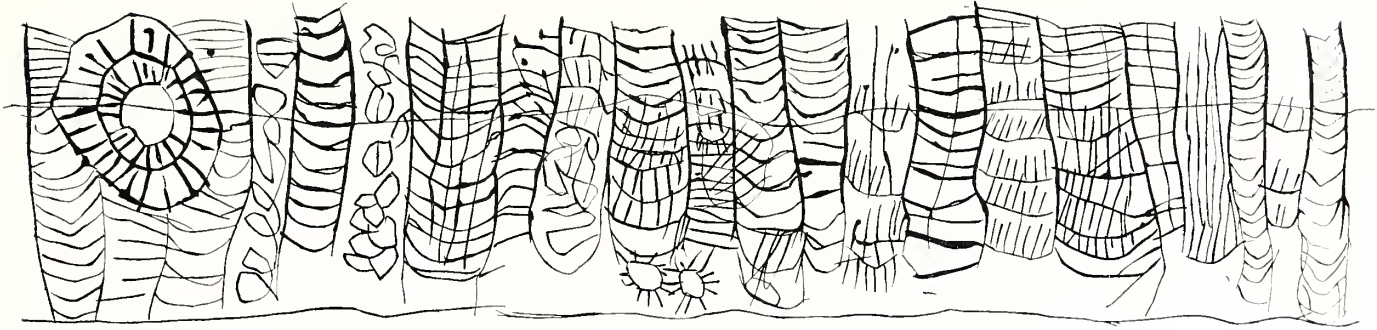


FIG. 25.—Vessel No. 103. Decoration. (About half size.)

Vessel No. 110 from the ground south of Mound D (Fig. 26); a water-bottle of brown ware, of the fish-effigy variety, might have come from Tennessee instead of from Moundville, so far as any difference between it and Tennessee ware can be detected.

Vessel No. 15 from the field west of Mound R is a bowl (Fig. 27), representing a fish, spines are shown on the back, while projections below indicate the ventral fins.



FIG. 26.—Vessel No. 110. Ground south of Mound D.
(Maximum diameter 5.4 inches.)

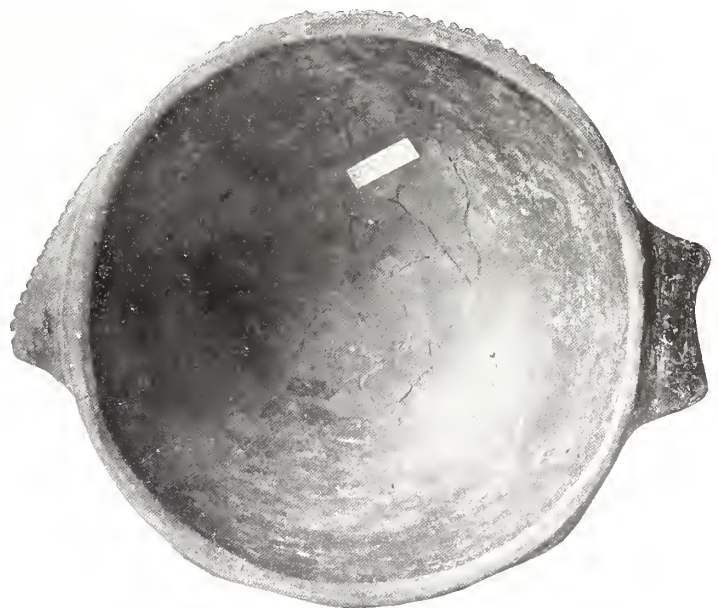


FIG. 27.—Vessel No. 15. Field west of Mound R.
(Maximum diameter 12.5 inches.)

¹ Lumholtz.



FIG. 28.—Vessel No. 55. Ground south of Mound D.
(Height 4.9 inches.)

Vessel No. 55 from the ground south of Mound D, a small effigy-bottle (Fig. 28), strongly calls to mind the ware of Tennessee and of Missouri.

Vessel No. 1 from the field west of Mound M (Fig. 29), is a bowl of brown ware, representing a frog. Vessel No. 77 from the ground south of Mound D (Fig. 30), a bottle, gives a life-like representation of the same animal.

Vessel No. 95 from the ground south of Mound D (Figs. 31, 32), is a bottle with a curious engraved decoration.

Vessel No. 21 from the ground south of Mound D, is a bowl of coarse, brown ware (Fig. 33), shown here only on account of its artistic, claw-shaped handles.

Vessel No. 93 from the ground south of Mound D, is a water-bottle (Figs. 34, 35, 36), having for decoration on two opposite sides our old Moundville acquaintance, the ivory-bill woodpecker having two heads, a



FIG. 29.—Vessel No. 1. Field west of Mound N. (Maximum diameter 7.7 inches.)



FIG. 30.—Vessel No. 77. Ground south of Mound D. (Height 5.8 inches.)

body in common, and two tails at right angles from the body, thus perhaps forming a cross of the four directions. The extended tongue and speech-symbols issuing from the mouth, so often found on woodpecker designs, are absent in this instance.

Vessel No. 86 from the ground south of Mound D, a bowl (Figs. 37, 38), has an engraved decoration spread over the base and sides, representing the ivory-bill woodpecker with wings extended. The bird is shown propped with the aid of its tail, as is the case when the woodpecker is at work. The tongue is



FIG. 31.—Vessel No. 95. Ground south of Mound D. (Height 7.2 inches.)

extended; speech-symbols are shown issuing from the mouth. We believe this entire design to be unique.

Vessel No. 5 from the field near Mound M, is a part of a bowl (Figs. 39, 40) having a seven-pointed star on the base and various interesting symbols around the sides.

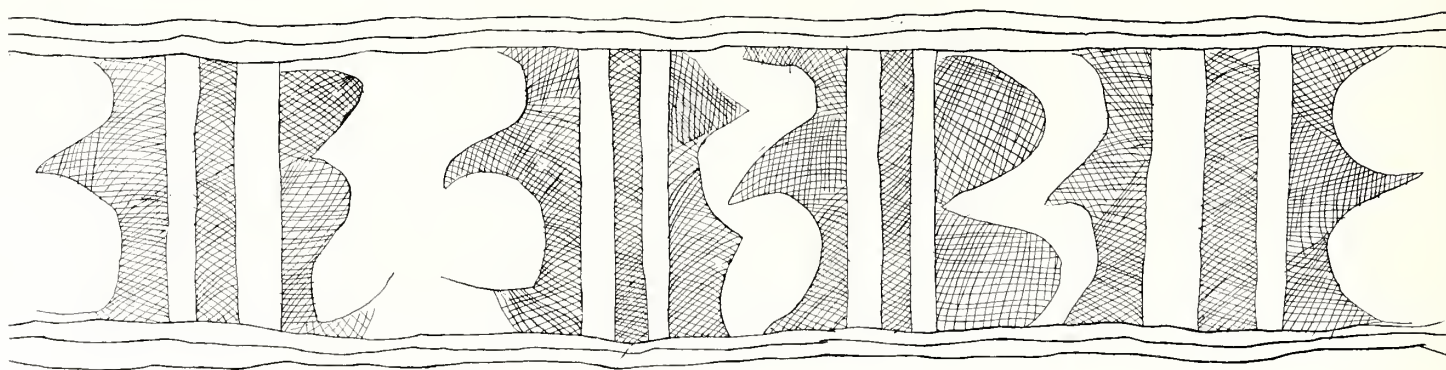


FIG. 32.—Vessel No. 95. Decoration. (About one-third size.)

Vessels No. 13 from the ground south of Mound D, and No. 28 from the field west of Mound R (Figs. 41, 42, respectively), are water-bottles each bearing a somewhat similar and evidently symbolic design, but its nature we are unable to determine.



FIG. 33.—Vessel No. 21. Ground south of Mound D. (Diameter 6.5 inches.)



FIG. 34.—Vessel No. 93. Ground south of Mound D. (Height 5.5 inches.)

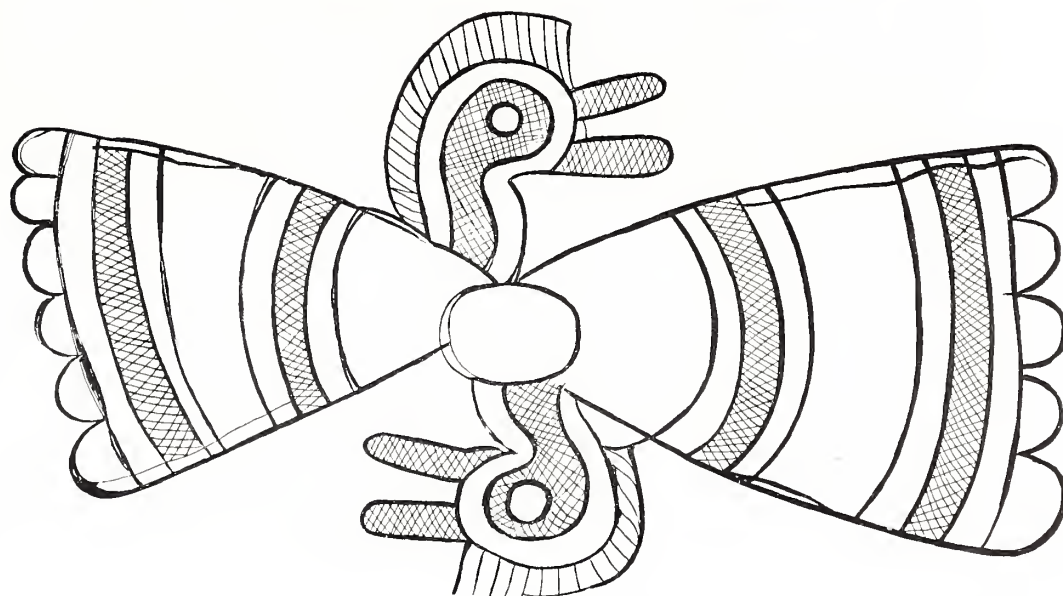


FIG. 35.—Vessel No. 93. Decoration showing ivory-bill woodpecker design. (About two-thirds size.)

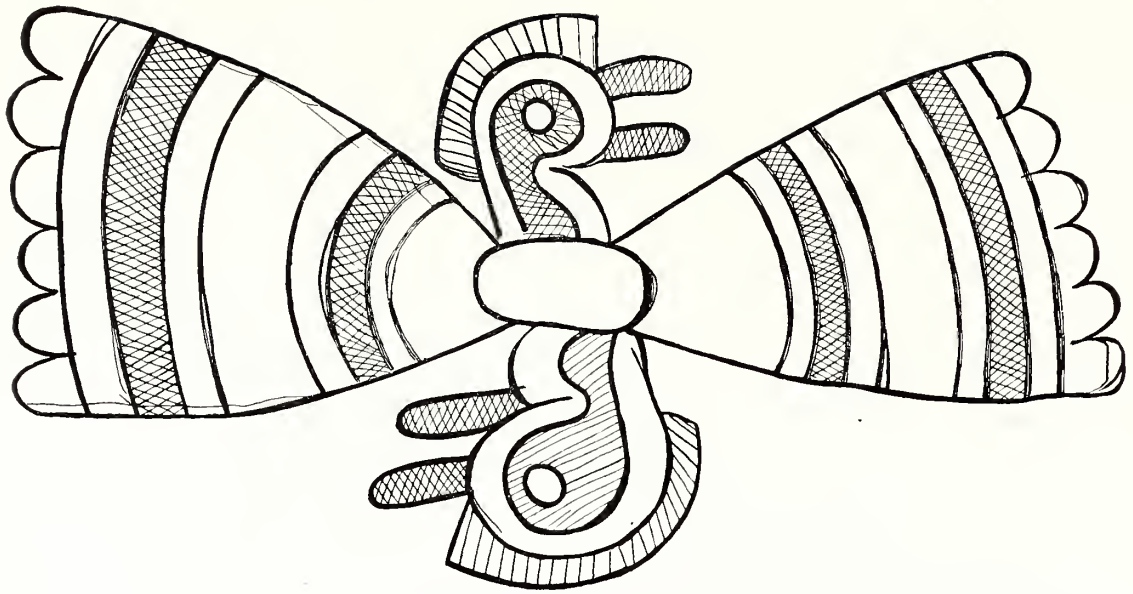


FIG. 36.—Vessel No. 93. Decoration showing ivory-bill woodpecker design. (About two-thirds size.)



FIG. 37.—Vessel No. 86. Ground south of Mound D. The ivory-bill woodpecker. (Diameter 4.5 inches.)



FIG. 33.—Vessel No. 86. Decoration. (About two-thirds size.)



FIG. 39.—Vessel No. 5. Field near Mound M. (About full size.)

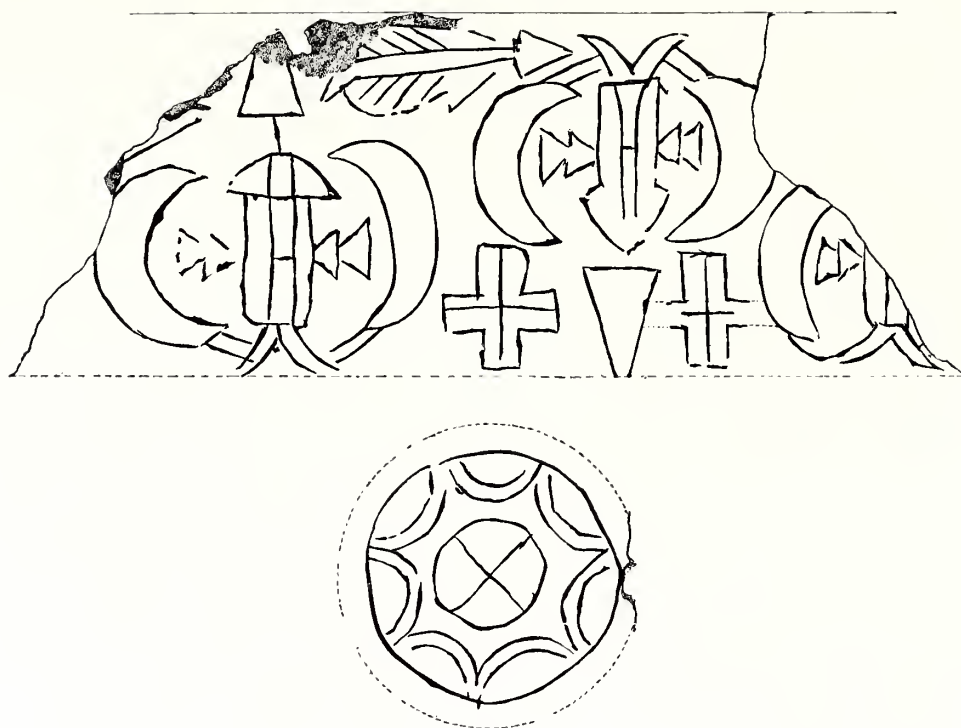


FIG. 40.—Vessel No. 5. Decoration. (About two-thirds size.)



FIG. 41.—Vessel No. 13. Ground south of Mound D. (Height 7.3 inches.)

Vessel No. 48 from the ground south of Mound D, is a bowl (Figs. 43, 44) the base and sides of which are completely covered with figures possibly representing bows and arrows. If the rosette-like figures are sun-symbols (and the sun is thus represented sometimes, we believe), the design may have been intended to represent the arrows or shafts of the sun. This, of course, is conjecture.

Vessels No. 88 from the ground south of Mound D, and No. 15a from the field near Mound M, are bottles (Figs. 45, 46, respectively), each having a design four times shown, consisting of a skeleton hand (probably) and a skeleton forearm. In



FIG. 42.—Vessel No. 28. Field west of Mound R. (Height 4.8 inches.)

our former Moundville report we described and figured (pp. 175 and 226) two vessels bearing engraved representations of skulls and skeleton forearms, and called attention to the resemblance between these and certain figures in Mexican codices. We were unable at that time, however, to cite a case in the codices where the ramus of the lower jaw is shown extending so markedly behind the occipital part of the skull as it is made to do in the Moundville designs. We are now able to a certain extent to supply the deficiency from the Sahagun manuscript.¹

¹ "Altmerikanischer Schmuck und soziale und militärische Rangabzeichen," Fig. 63. Prof. Dr. Eduard Seler. *Gesammelte Abhandlungen*.



FIG. 43.—Vessel No. 48. Ground south of Mound D. (Diameter 5.6 inches.)



FIG. 44.—Vessel No. 48. Decoration. (About half size.)

Vessel No. 1 from the field near Mound M, is a bottle of artistic outline (Fig. 47) with an incised design which is perhaps a variant of the leg-symbol.



FIG. 45.—Vessel No. 88. Ground south of Mound D. Design of hand and skeleton forearm. (Height 5.5 inches.)

Vessel No. 109 from the ground south of Mound D, is a bottle without decoration (Fig. 48), shown here on account of its graceful form.

Vessel No. 59 from the ground south of Mound D, a bottle (Figs. 49, 50) with engraved design twice shown, representing wings of an eagle or of the plumed or horned serpent.

Vessel No. 6 from the ground south of Mound D, a bottle (Figs. 51, 52, 53), bears engraved on two opposite sides representations of the winged rattlesnake, in this case without horns, crest, or plumes. Leg-



FIG. 46.—Vessel No. 15a. Field near Mound M. (Height 5.5 inches.)



FIG. 47.—Vessel No. 1. Field near Mound M. (Height 7 inches.)



FIG. 48.—Vessel No. 109. Ground south of Mound D. (Height 6.9 inches.)



FIG. 49.—Vessel No. 59. Ground south of Mound D. Design of eagle or serpent wings. (Height 5 inches.)

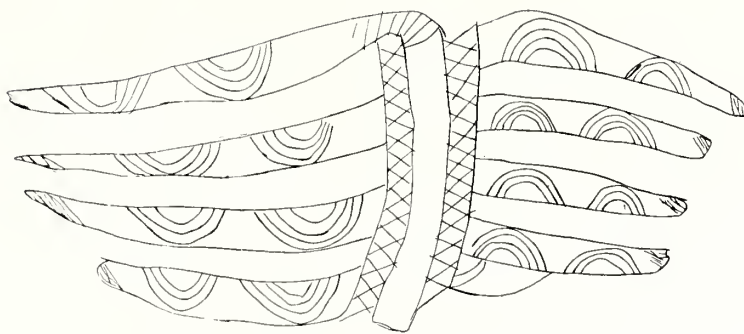


FIG. 50.—Vessel No. 59. Decoration. (About half size.)



FIG. 51.—Vessel No. 6. Ground south of Mound D. Winged serpent design. (Height 6 inches.)

symbols, however, are clearly represented. The leg-symbols present on the winged serpent found by us on our first visit to Moundville (Fig. 152 of our report), and seen on some of the plumed serpent designs of Peru, is a most popular symbol on the pottery of the northwestern Florida region,¹ whence it extends somewhat northward,² and is even found incised in the open-work effigy-vessels.³ Finally,

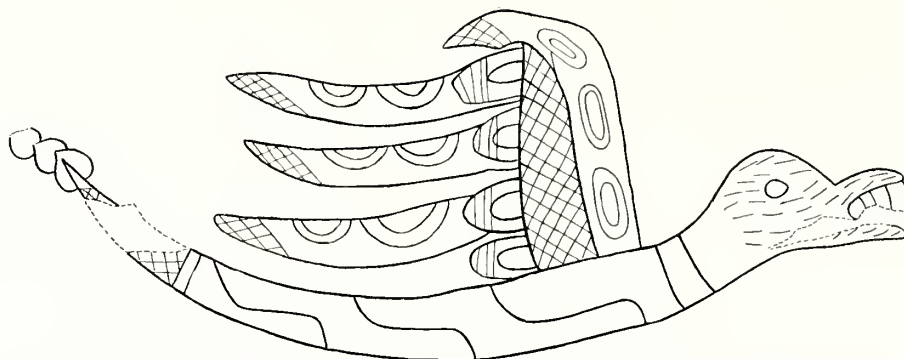


FIG. 52.—Vessel No. 6. Decoration showing winged serpent with leg-symbols. (About half size.)

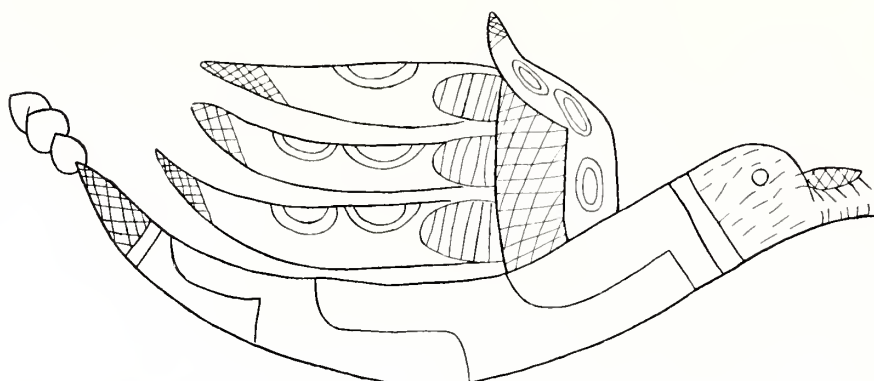


FIG. 53.—Vessel No. 6. Decoration showing winged serpent with leg-symbols. (About half size.)

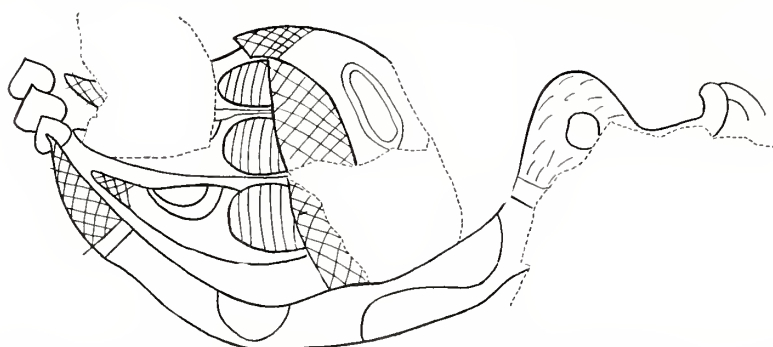


FIG. 54.—Vessel No. 1. Ground south of Mound D. Decoration showing the winged serpent. (About half size.)

¹ "Aboriginal Remains of the Northwest Florida Coast," Parts I and II. Journ. Acad. Nat. Sci. of Phila., Vols. XI and XII, respectively.

² "Mounds of the Lower Chattahoochee and Lower Flint Rivers," Figs. 15 and 16. Journ. Acad. Nat. Sci. of Phila., Vol. XIII.

³ *Ibid.* Fig. 8.



FIG. 55.—Vessel No. 1. Ground south of Mound D. Decoration showing the winged serpent. (About half size.)

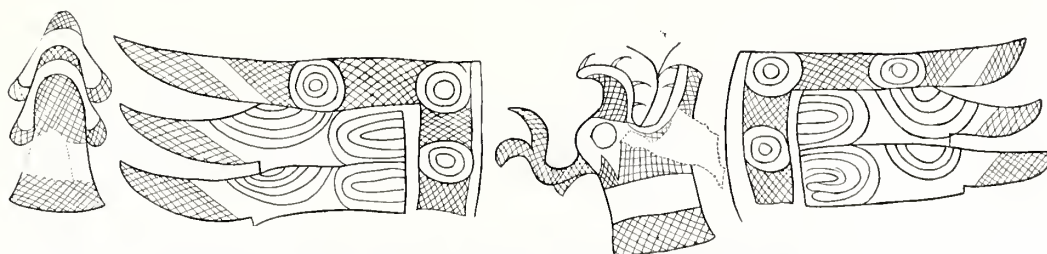


FIG. 56.—Vessel No. 34. Ground south of Mound D. Decoration showing head, wings and tail of the horned or plumed serpent. (About one-third size.)



FIG. 57.—Vessel No. 33. Ground south of Mound D. (Height 5.8 inches.)

we find the symbol used apart from the animal and placed around vessels as an ornament simply¹—this custom reaching far down the Florida coast.²

Vessel No. 1 from the ground south of Mound D, is a bottle found in so many fragments (some of which are missing), that it is not deemed worthy of reproduction here. The engraved decoration, however (Figs. 54, 55), a winged rattlesnake on two opposite sides of the vessel, without horns or plumes, has been carefully traced out and is presented as it appears.

Vessel No. 34 from the ground south of Mound D, is a water-bottle bearing an incised decoration (Fig. 56) showing the head, wings, and tail of the horned or

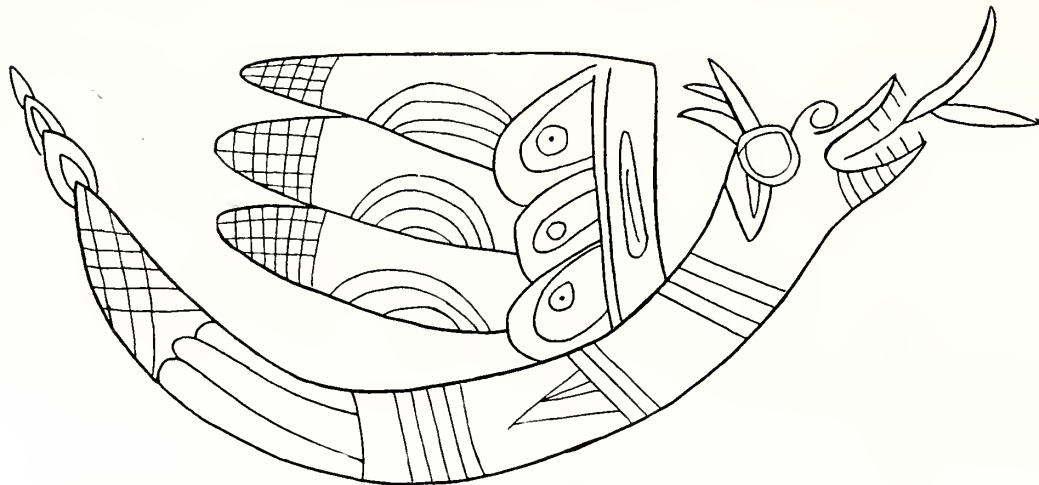


FIG. 58.—Vessel No. 33. Decoration showing the plumed or horned serpent. (About two-thirds size.)

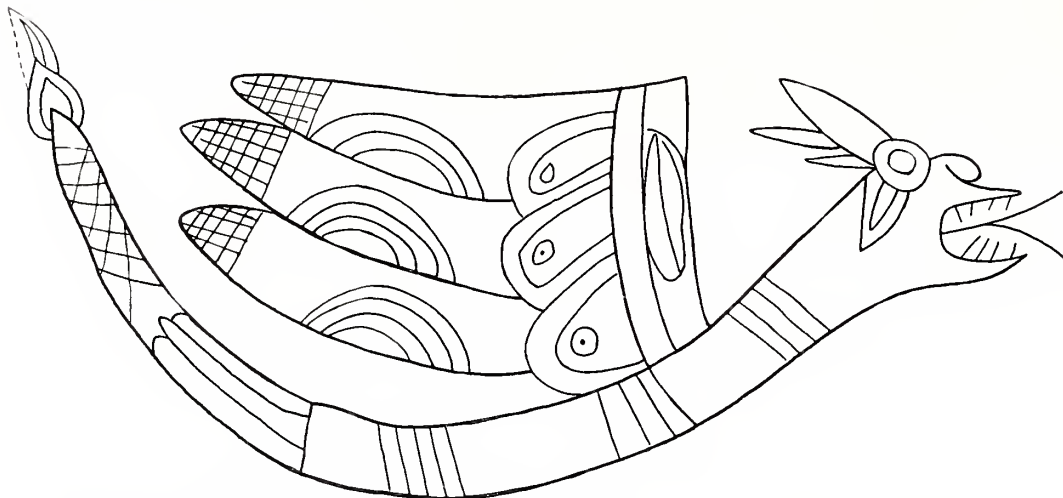


FIG. 59.—Vessel No. 33. Decoration showing the plumed or horned serpent. (About two-thirds size.)

plumed serpent, displayed separately—a design similar in the main to one found by us on our first visit to Moundville.

Vessel No. 33 from the ground south of Mound D, is a bottle (Figs. 57, 58, 59) bearing two engraved representations of the horned or plumed serpent.

¹ Northwest Florida Coast, Part I, Figs. 7 and 25.

² "Miscellaneous Investigation in Florida," page 306. Journ. Acad. Nat. Sci. of Phila., Vol. XIII.



FIG. 60.—Vessel No. 42. Ground south of Mound D. (Height 7.4 inches.)

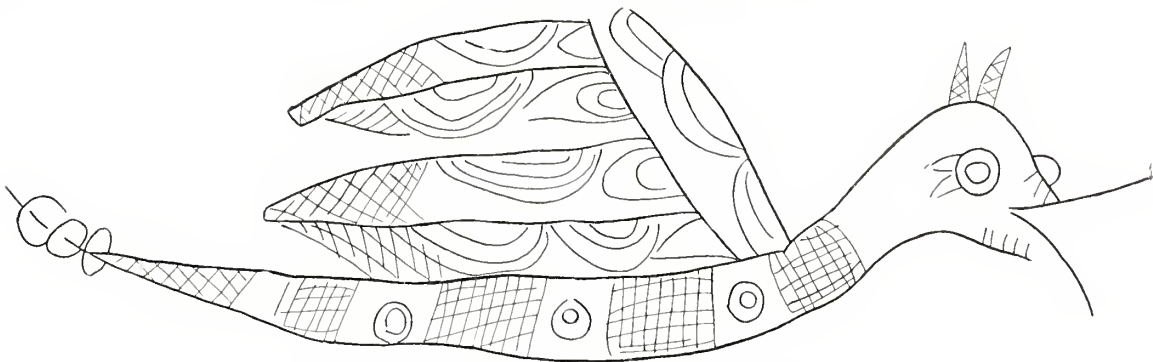


FIG. 61.—Vessel No. 42. Decoration. (About half size.)

Vessel No. 42 from the ground south of Mound D, is a bottle (Figs. 60, 61, 62) bearing around the neck marks of long-continued abrasion as by a cord for suspension. The decoration on two opposite sides consists of engraved representations of horned and winged rattlesnakes.

Vessel No. 87 from the ground south of Mound D, is a comparatively small bottle (Figs. 63, 64) having as engraved design a single winged serpent. This ser-

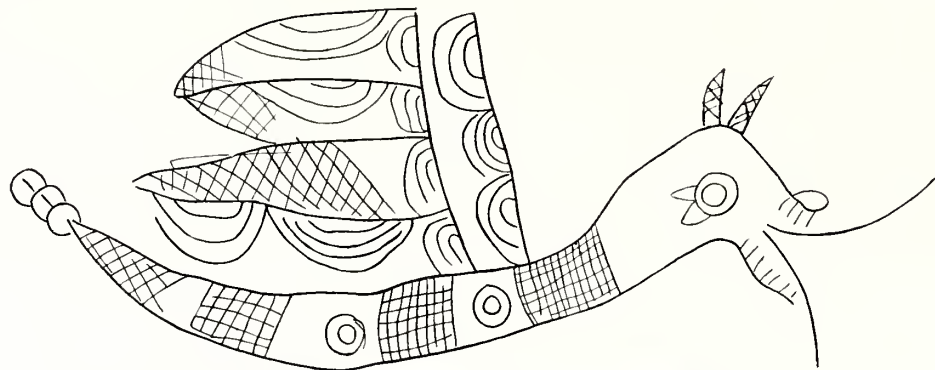


FIG. 62.—Vessel No. 42 Decoration. (About half size.)



FIG. 63.—Vessel No. 87. Ground south of Mound D. (Height 4.5 inches.)

pent is an interesting variant from others appearing on Moundville pottery, inasmuch as rattles are absent and the tail is that of a bird.

Vessel No. 44 from the ground south of Mound D, is a badly broken bottle carefully put together since its discovery. The engraved decoration (Fig. 65) is doubly interesting. In the first place, the tail of a bird is shown, to which rattles have been added. But the most noteworthy feature is that of the union of the two serpents around the vessel, being the first step toward a conventionalized, decorative serpent-design.

Vessel No. 8 from the ground south of Mound D, a water-bottle (Figs. 66, 67), shows the next step toward a conventionalized serpent-design. Here we see partly-interlocked scrolls decorated with the crest of the serpent. It is interesting to note that Professor Holmes, in an early report of the Bureau of Ethnology,¹ says

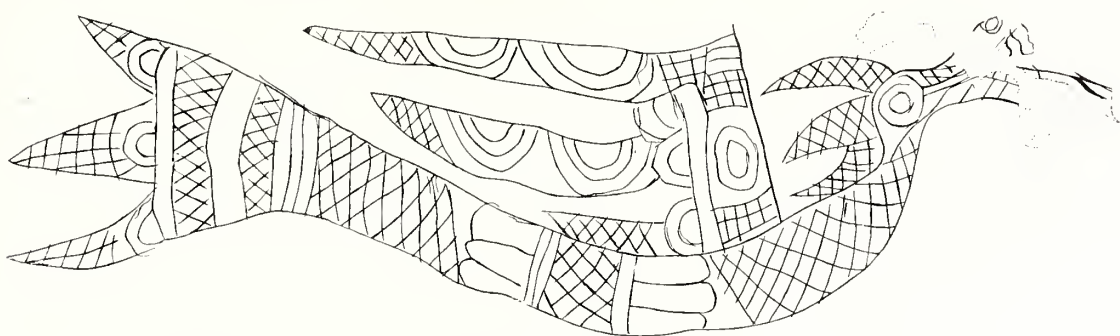


FIG. 64.—Vessel No. 87. Decoration. Winged serpent with rattles replaced by bird's tail. (About half size.)

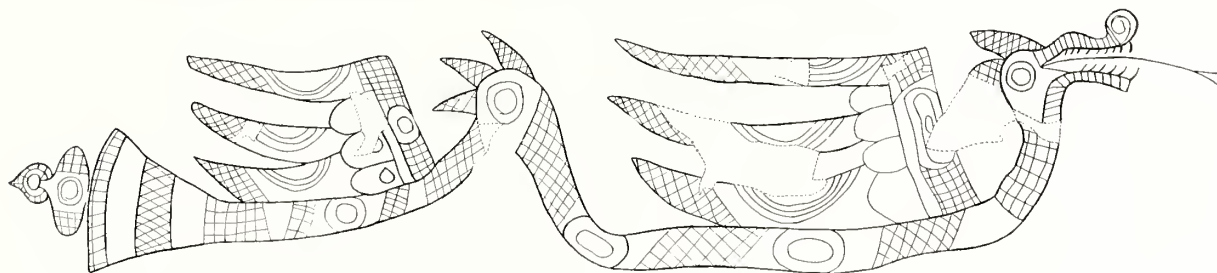


FIG. 65.—Vessel No. 44. Ground south of Mound D. Decoration showing the merging of the two serpents, being the first step toward a conventionalized design. (About one-third size.)

in relation to a vessel of the same character as the one we are describing, "The engraved design consists of four elaborate, interlinked scrolls, comprising a number of lines, and bordered by wing-like, triangular figures, filled in with reticulated lines. This latter feature is often associated with native delineations of mythic reptiles, and it is not impossible that this scroll work is a highly conventionalized form of some such conception." Vessels with designs kindred to the one in question are described in other works.²

¹ W. H. Holmes. "Ancient Pottery of the Mississippi Valley," p. 419, 1882-83.

² W. H. Holmes. An. Rep. Bur. Amer. Ethn., 1881-82, Fig. 149.

W. H. Holmes. An. Rep. Bur. Amer. Ethn., 1882-83, Fig. 440.

Also Plate XV, Fig. c. Report of 1898-99, where the figure is taken from the Report of 1882-83.

C. B. Moore. "Certain Aboriginal Remains of the Black Warrior River," Fig. 162.

Compare also tail-piece, page 33, "The Serpent Motive in the Ancient Art of Central America and Mexico," Dr. George Byron Gordon. Transactions Department of Archaeology, University of Penna., Vol. I, Part III, 1905.



FIG. 66.—Vessel No. 8. Ground south of Mound D. (Height 5.3 inches.)

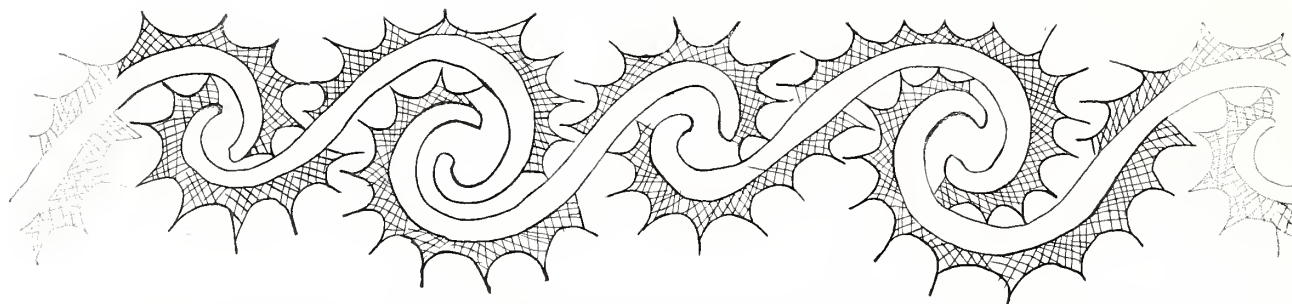


FIG. 67.—Vessel No. 8. Decoration showing highly conventionalized serpent-design. (About one-third size.)

Vessel No. 14 from the ground south of Mound D (Figs. 68, 69), bears another highly conventionalized serpent-design of partly interlinked scrolls and serpents' crests.

Vessel No. 96 from the ground south of Mound D, a bottle (Figs. 70, 71), bears another conventionalized serpent-decoration in which we see a lessening of the number of crests and a consequent tendency toward the partly-interlocked scroll pure and simple.



FIG. 68.—Vessel No. 14. Ground south of Mound D. (Diameter 4.8 inches.)

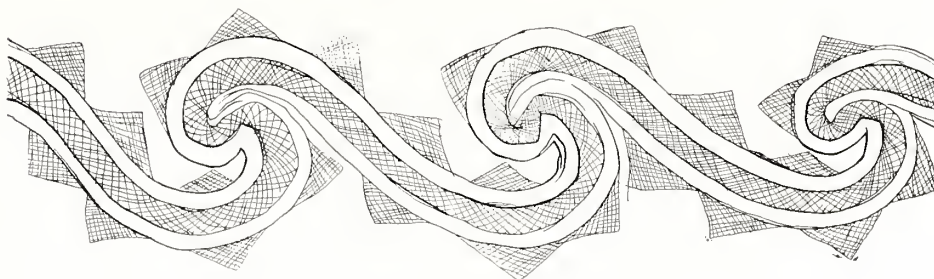


FIG. 69.—Vessel No. 14. Decoration showing highly conventionalized serpent-design. (About one-third size.)

Vessel No. 3 from the field west of Mound R, a very graceful water-bottle (Fig. 72), bears the partly-interlocked scroll without the serpents' crests, the ultimate stage in the evolution from the serpent-design.

Vessel No. 6 from the field near Mound M, a water-bottle, bears a decoration shown in Fig. 73, where again we see the partly-interlocked scroll free from the serpent-crest decoration.



FIG. 70.—Vessel No. 96. Ground south of Mound D. (Height 5 inches.)



FIG. 71.—Vessel No. 96. Decoration showing highly conventionalized serpent-design. (About half size.)



FIG. 72.—Vessel No. 3. Field west of Mound R. Partly interlocked scroll, or serpent-design. (Height 8.4 inches.)

BONE OBJECTS.

Throughout the second investigation at Moundville many implements of bone were found, some with the articular part remaining—these latter being usually from the ulna of the deer. A selection of bone implements from Moundville is shown in Fig. 74, including one with a chisel edge.

Also were found several canines of large carnivores, pierced for suspension ;

times of deer-antlers, used as arrowheads; knuckle bones of deer; a part of a bone needle with an eye.

With fragments of animal bones were a humerus of the Virginia deer and part of the upper jaw of the black-bear, probably *Ursus americanus*. We are indebted to Prof. F. A. Lucas for these identifications.

The finding of the incisor of a beaver will be referred to elsewhere in this report.

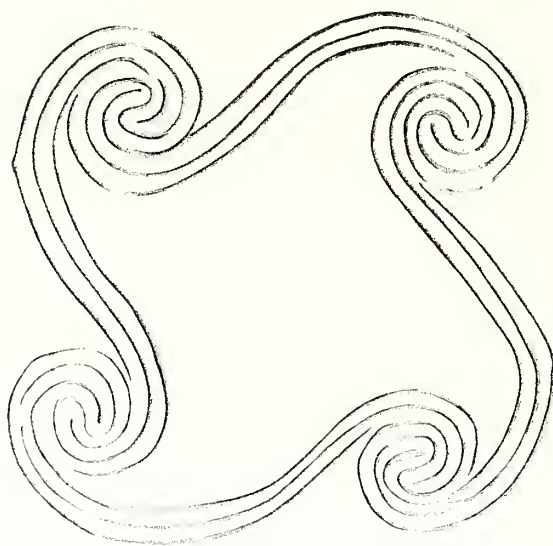


FIG. 73.—Vessel No. 6. Field near Mound M. Decoration showing highly conventionalized serpent-design. (About one-third size.)

In the ground south of Mound D, apart from human remains and widely separated, were two femurs belonging to two bears of different size—both young, as the epiphyses were not attached. The shafts of these femurs are highly polished as by long and energetic use. In the same position in each is a deep depression which could have been made by friction with the thumb through a long period of time. Just such a depression has been worn on the hard-wood handle of the trowel which has been in use for years in our expeditions, which also shows the high polish seen on the shafts of the femurs. The great trochanter of each femur is rounded and worn to some extent as by gentle use

or with more vigorous treatment under soft material—a pad of soft hide, perhaps, as Professor Putnam has suggested to us.

A complete description of these bones (one of which is shown in Fig. 75) was sent to the National Museum, which courteously reported that no similar objects were in its collection. Archaeologists consulted by us have no suggestions to offer other than our own belief that the femurs are drum-sticks. The high polish and the grooves can well be accounted for if we bear in mind the frenzied beating of the medicine-man, continued over long periods; and the light wear on the great trochanters resulted no doubt from use under a soft covering intended for protection of the head of the drum.

STONE OBJECTS.

At our first visit to Moundville we found a large vase of diorite, beautifully carved—a triumph of aboriginal endeavor.

At our second visit, with burial No. 77, an adult lying at full length on the back in the ground south of Mound D, we unearthed a stone bowl in many fragments, all of which, fortunately, were recovered and have been cemented together (Figs. 76, 77, 78, 79).



FIG. 74.—Bone implements, Moundville. (Full size.)



FIG. 75.—Femur of bear, probably used as drum-stick. (Length 14.75 ins.)

The measurements are as follows: height, 4 inches; diameter with neck and tail, 13.75 inches; diameter of bowl, 9 inches.

The material is a hard, white limestone which must have offered considerable resistance to the carver's tool, though at present the surface of the vessel has deteriorated greatly through lapse of time, being soft and yellow in color.

The vessel, which is intended to represent a bird, has the neck and head extended from the side of the bowl and running parallel with it to unite again with the bowl at the tip of the bill. The wings, feathers and claws of the bird are skilfully incised on the sides of the bowl and on part of the base. The tail projects almost at right angles.

The bird here represented seems to be somewhat of a non-descript. According to Mr. Witmer Stone of the Academy of Natural Sciences, judging from the crooked beak and the talons, a bird of prey is represented, having a somewhat unduly elongated neck to afford ample size for the handle. The wattle, presumably, is an addition to please the fancy of the artist, though a somewhat similar wattle, but placed farther forward, is found on the king vulture (*Gypagus papa*), whose northernmost habitat, however, is southern Mexico.

This vessel, when snow-white and intact, must have been indeed a striking example of aboriginal work and worthy of the ancient art of Moundville.

Burials Numbers 58 and 59, in the ground south of Mound D, two skeletons of adolescents at full length on the back, side by side, one with a few pentagonal and hexagonal shell beads, had lying between them, near the waists, a superb pipe of limestone, representing an eagle. This pipe, 4.6 inches in length, carved with great spirit, is a worthy exemplar of the prehistoric art of Moundville (Figs. 80, 81, 82, 83, 84, 85, 86). The bird is represented on its back, the head swung around to one side with the beak open and tongue extended.



FIG. 76.—Bowl of limestone. (Maximum diameter 13.75 inches.)



FIG. 77.—Bowl of limestone, viewed from above.



FIG. 78.—Bowl of limestone, viewed from below.

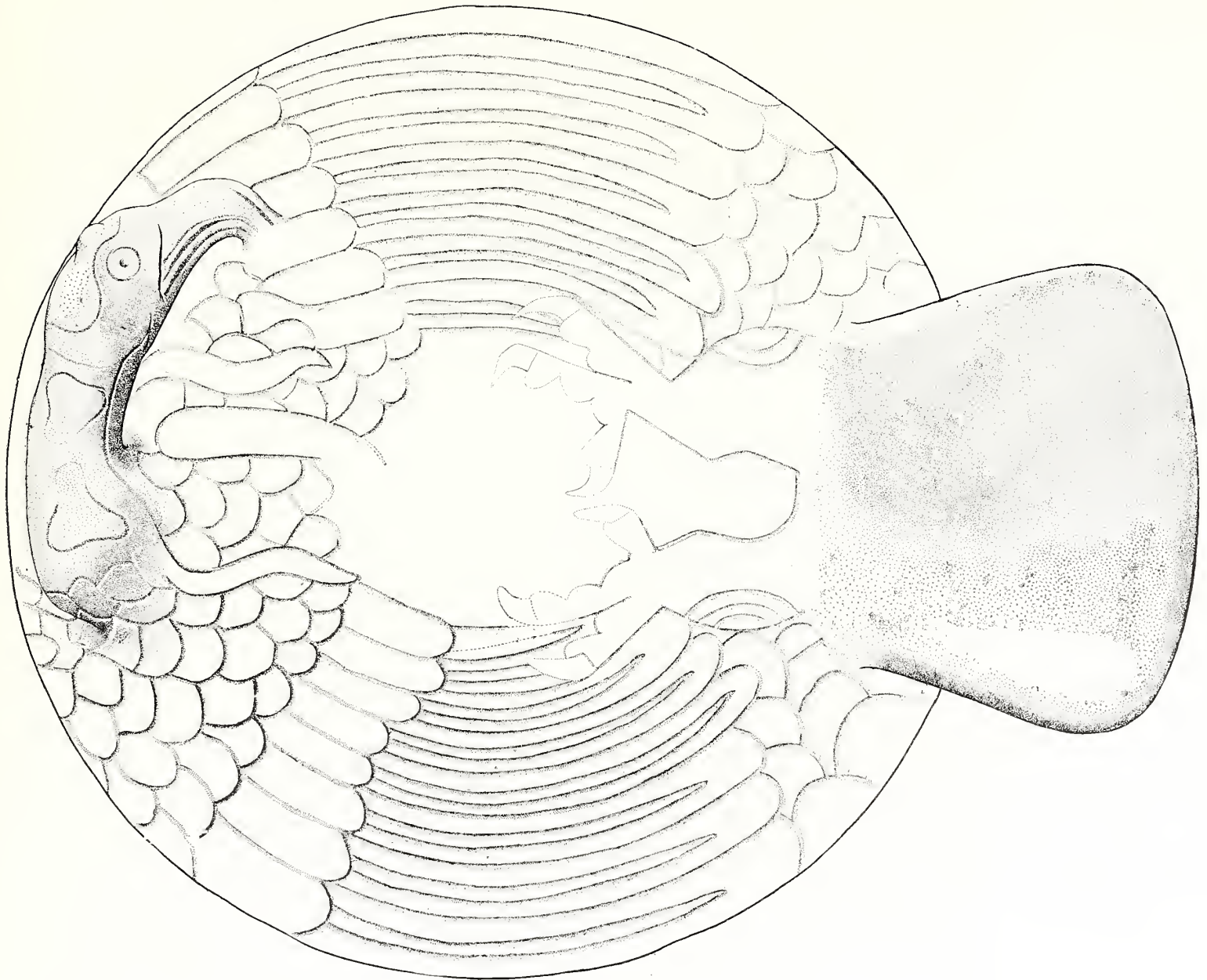


FIG. 79.—Bowl of limestone. Decoration of sides and base.



FIG. 80.—Pipe of limestone, representing an eagle. Moundville. (Length 4.6 inches.)



FIG. 81.—Eagle-pipe. Another view.



FIG. 82.—Eagle-pipe. Another view.

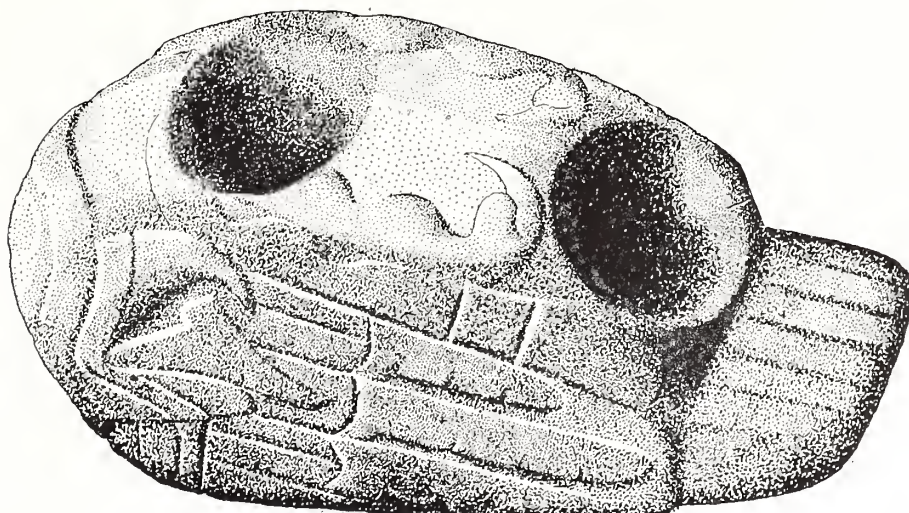
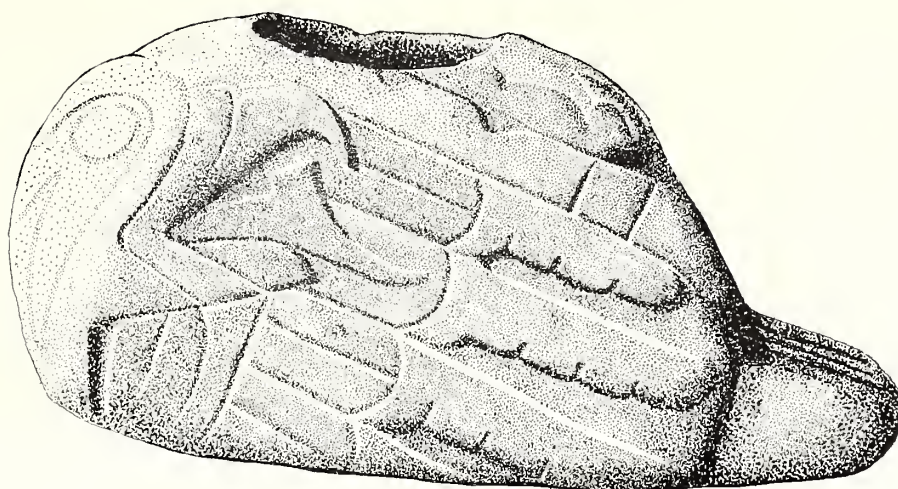


FIG. 83.—Eagle-pipe. Decoration. (Full size.)

FIG. 84.—Eagle-pipe. Decoration. (Full size.)

FIG. 85.—Eagle-pipe. Decoration. (Full size.)

Incidentally, it may be said that the "hump" shown on the tongue by the native artist, though somewhat exaggerated, is not imaginary, as may be proved upon examination of an eagle. It may be that this pipe, showing as it does the eagle lying upon its back, its legs and claws on the belly, represents the dead bird. By pulling out the tongue of a dead eagle one would be certain to notice the "hump"; hence the examination of a dead bird would have sufficed so far as correct rendering on the pipe was concerned.

On the other hand, the "hump" on the tongue is plainly shown on pottery from Moundville, where the eagle's head is erect and the bird is evidently represented as alive. Several experts who have charge of eagles in captivity inform us that under certain circumstances the "hump" on the tongue is visible on the living bird. Possibly the aboriginal artist at Moundville was familiar with the characteristics of eagles through the possession there of captive birds—a custom observed among the Zuñi of New Mexico at the present time.

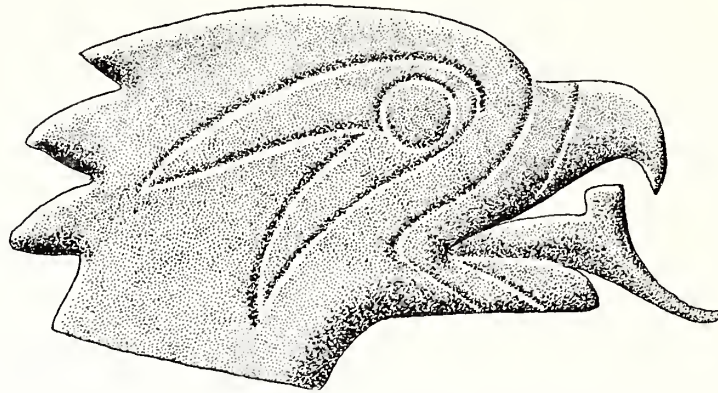


FIG. 86.—Eagle's head, from pipe, as it would appear on a flat surface. (Full size.)

Owing to slight disintegration of the stone at that part of the pipe where the head is, the details of the carving are somewhat indistinct, but by holding the pipe in a suitable light all the details of the head are still distinguishable. A wing is represented on each side. The legs, beginning at the tail, which extends outward, rise upward and forward, the feet and talons resting on the belly and embracing the orifice of the bowl. The opening for the stem is immediately above the tail.

The limestone of which the pipe is made is undoubtedly the same as that of the stone vessel which we have just described—compact and hard within, snow-white originally.

Three half-tone pictures of this pipe were sent by us to Mr. Joseph D. McGuire, who writes of the pipe as follows:

"The specimen is *sui generis* but apparently belongs to the bi-conical type found commonly in the States of Tennessee, Arkansas, etc. The material is unusual from which to make a pipe, but the Indians on occasion used anything, whether suitable or not.

"This pipe deserves a place to itself and I congratulate you as to its possession.

"The pipes of what I have called the bi-conical type are in my paper^[1] (pages 538-39, etc.) though some of the features of this specimen are not entirely unlike those on pages 438-39, though your specimen to me has an elaboration of feather-work which has a Mexican appearance.

"I know of no pipe at all resembling the one you have more than to say it belongs to the type of bi-conical pipes."



FIG. 87.—Ceremonial palette for paint. (Full size.)

Part of a limestone pipe of ordinary type lay with a burial which will be described in detail later in the report.

With the exception of these two pipes no others of earthenware or of stone were met with at our second investigation of Moundville.

Nine entire discs (in diameter from 11.5 to 4.5 inches) and five fragments,

¹ "Pipes and Smoking Customs of the American Aborigines," by Joseph D. McGuire. Report of the U. S. National Museum for 1897.

nearly all of fine grained sandstone, were found on our second visit to Moundville. None of these ceremonial palettes¹ bears any interesting decoration such as has

been found on other palettes at Moundville and elsewhere. One very rude palette (Figs. 87, 88) has certain rough markings.

Three fragments with marginal decoration differing somewhat from those found by us before are shown in Fig. 89.

On practically all the palettes was paint, sometimes red, sometimes white—the red being hematite; the white, white lead (lead carbonate). It may be remembered by those who have read our first report on Moundville that it is admittedly impossible

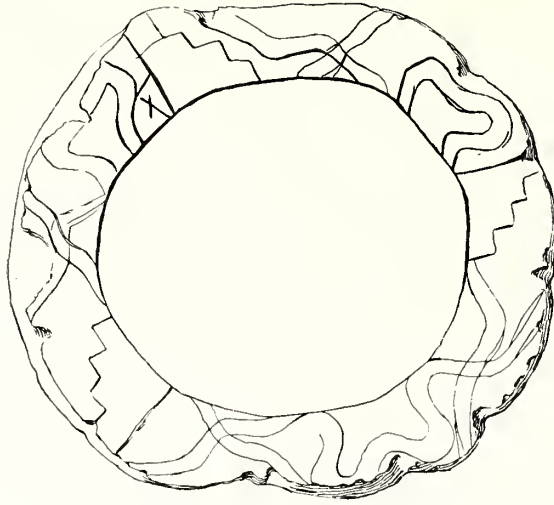


FIG. 88.—Design on palette. (About half size.)

for aborigines to have made white lead, and that the method by which they obtained it was by scraping from masses of galena (lead sulphide), such as we found at Moundville at both of our visits, the white lead (lead carbonate) which is a superficial transformation occurring on masses of lead sulphide. This material, mixed with bear's grease, would make an excellent paint.

While at Moundville we found, sometimes in lumps with burials, or smeared on objects, red coloring matter which we felt must be hematite (red oxide of iron—the true aboriginal red paint). However, we decided on a chemical determination in addition to the analyses made in other seasons of red paint found under like conditions. The result, as we had supposed, showed the material to be hematite.



FIG. 89.—Fragments of ceremonial palettes. (About half size.)

¹This subject has been brought to date, "Certain Notched or Scalloped Stone Tablets of the Mound Builders," W. H. Holmes, *Amer. Anthropol.* Jan.-March, 1906.



FIG. 90.—Ceremonial axe of igneous rock. (Full size.)

With post-Columbian burials, however, the paint is not always the red oxide of iron. Once, in a low mound in Clay County, Florida, we found two skeletons with flint-lock muskets, lead bullets, etc. With these was a skeleton, evidently of a woman, having in one hand a bit of looking-glass and in the other a mass of red paint. Here we had to do with distinctly post-Columbian burials—very different from those of Moundville. The red paint proved to be cinnabar (mercury sulphide), which it is unlikely aborigines in the United States could have obtained before the coming of Europeans.

One mass of glauconite, "green earth" as it is called, was found on our second visit. This earth, which owes its color not to copper, but to iron in the ferrous state, may have served as a temporary paint, oxidation being likely to impair its color.

Two "hoe-shaped implements" of igneous rock were met with on our second visit, one with a burial, the other in ground aboriginally disturbed. One of these (Fig. 90) is of great beauty, having a convexity of blade and fluke-like projections below the shank in place of the usual ones which extend somewhat more at an angle.

The "hoe-shaped implement" is a ceremonial axe, as was recognized by many before the publication of our paper on the subject.¹

At our second investigation at Moundville we found a beautiful little pendant of shell in the form of a battle-axe (figured under "Shell" in this paper), which clearly shows the blade to be the "hoe-shaped implement," even the method of fastening the blade to the handle being shown—thongs passing through the usual perforation in the stone to each side of the part projecting behind the handle. Another interesting feature of this little axe of shell is that a ring for suspension is provided at the end of the handle, as is the case with the superb monolithic axe and handle obtained by us at Moundville on our former visit.



FIG. 91.—Discoidal stone.
(Full size.)

Throughout the second investigation we found thirty-one discoidal stones—some with burials, but a larger number in the soil apart from human remains—ranging in diameter between 3.7 inches and .95 of an inch. Few are especially well wrought; none is perforated or cup-shaped. One of these discoidals is of lignite. Three seem to be hematite, but are of limonite with a thick coating of hematite, a natural formation after the making of the discoidal. One of these, on the base, shows an abandoned attempt to drill through, a partial perforation with a core being left. Another discoidal bears the decoration shown in Fig. 91.

Although there were found at Moundville quantities of fragments of "celts," some of which had been of considerable size when entire, no whole specimens of large size were met with by us. All we found were rather crudely made.

¹ "The so-called 'Hoe-shaped Implement.'" Amer. Anthropologist, July-September, 1903.

Six double-bladed implements—hatchets and chisels—were found, the majority apparently of fine-grained, igneous rock. One of these is shown in Fig. 92.

We have noted in the previous report the comparative absence of weapons at Moundville. The results of our second visit were confirmatory as to this.

A spear-head of chert, 6 inches in length, lay near the right forearm of a skeleton; and a fragment of a spear-head or of a dagger, more than three inches long, was unearthed.

Two small chert arrowheads were found, each near the skull of a skeleton; and four others lay near the knee of the skeleton of an adult fully extended on the back. This same skeleton, it may be said incidentally, had with the arrowheads many small fragments of chert; a water-bottle near the knee; along the right leg masses of hematite in a condition to use as paint. Another water-bottle was near the pelvis.

A neat little gorget (Fig. 93), probably of igneous rock, lay in the soil alone.

Fragments of mica lay with skeletons and alone in the soil. On each side of a skull was a disc of mica, 1.5 inches in diameter, centrally perforated—ear-plugs, no doubt.

No particular mention will be made of pebbles, pebble-hammers, chips of stone, hones of sandstone, etc., found scattered in the soil apart from burials. A multi-grooved sandstone hone lay near the skull of a skeleton.

A rude disc of inflammable material, probably from the nearby coal region, was found.



FIG. 93.—Gorget. (Full size.)

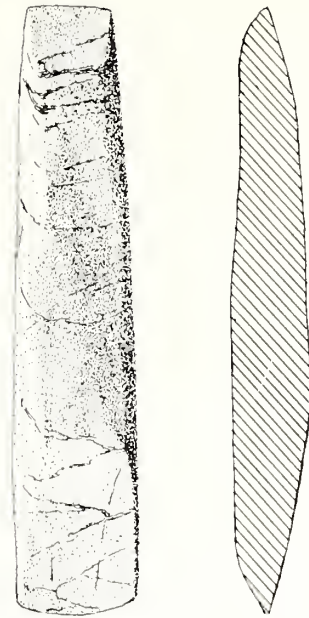


FIG. 92.—Double-bladed implement and section. (Full size.)

SHELL OBJECTS.

Owing to lapse of time or to other causes, objects wrought from shell at Moundville were, as a rule, either too fragmentary or too indistinct as to decoration to be of interest archaeologically. If all the shell (and, incidentally, all the copper) objects which were found in crumbling remnants at Moundville, could be represented entire in this memoir, we are confident an important page would be added to the history of prehistoric art in America.

In small fragments, on the second investigation, were found what remained of two shell drinking-cups which evidently had been covered with incised decoration.

Another shell drinking-cup, decorated with straight lines over part of the surface, lay in contact with the skull of an extended skeleton.

Several undecorated drinking-cups also were found.

In addition to several gorgets, of which only traces remained, we got from the ground south of Mound D a gorget (Fig. 94) lying between the skulls of an infant and of an adult at full length on the back, which were almost in contact. The decoration of the gorget, which we believe to be a very highly conventionalized serpent design—the rattles and eyes, and possibly a fang, being, we think, distinguishable—is shown in Fig. 95.

A fragmentary gorget of shell is of interest in that upon it stand two birds facing each other with a shrub or bush between. This same design was found by us on a shell gorget from

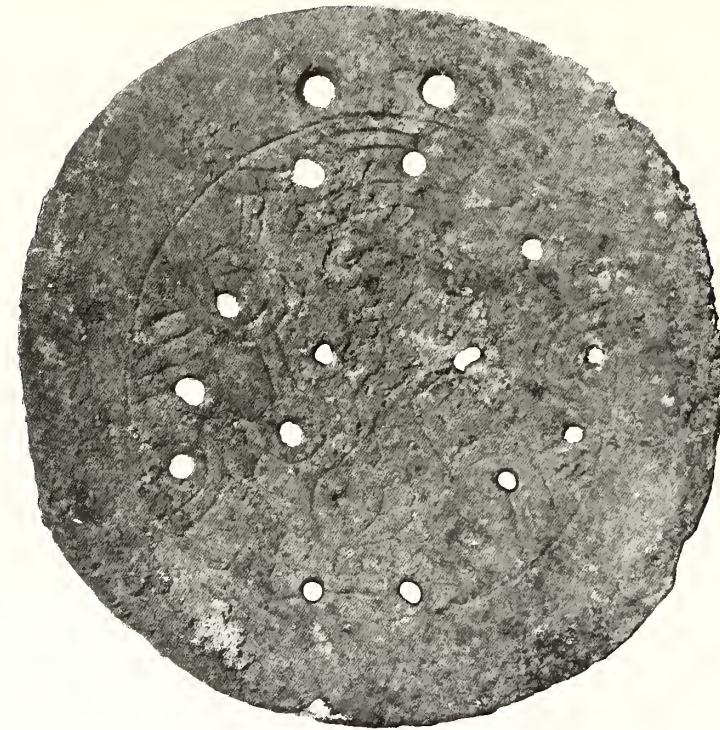


FIG. 94.—Shell gorget. (Full size.)

a mound on the Alabama river,¹ above the city of Montgomery, and is found at the present day among the Huichol Indians,² descendants of ancient Mexicans.

With respect to shell objects, in one instance alone were we fortunate. Burial No. 98, the skeleton of an adult extended on the back, had on one side of the head a bowl and on the other side a water-bottle. On the breast, protected by a bone, which had got in position above it, was a superb gorget (Figs. 96, 97) with incised decoration represent-

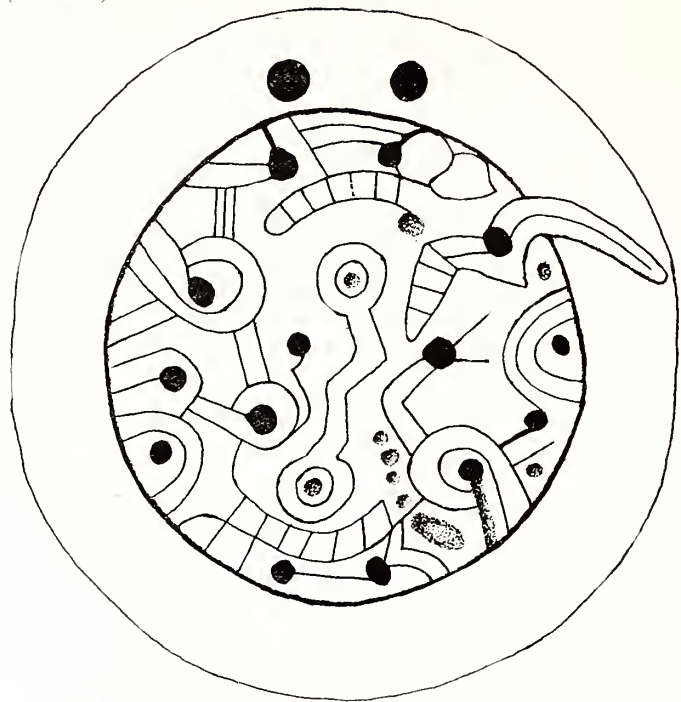


FIG. 95.—Shell gorget. Decoration showing highly conventionalized serpent design. (Full size.)

¹ "Certain Aboriginal Remains of the Alabama River," Fig. 55. *Journ. Acad. Nat. Sci. of Phila.*, Vol. XI.

² Dr. Carl Lumholtz, "Decorative Art of the Huichol Indians," Figs. 436 and 437. *Am. Mus. Nat. Hist. Memoirs*. Vol. III.



FIG. 96.—Gorget of shell. (Full size.)



FIG. 97.—Gorget of shell. Decoration, perhaps the man-eagle. (Full size.)

ing perhaps the man-eagle,¹ the serrated marking on the neck seemingly indicating the eagle.

At the time of our first visit to Moundville, we found a shell gorget which is referred to in our report (page 172). This gorget was so thickly covered with patina that the details of the decoration upon it were not distinguishable. Considerable work was done with a view to the removal of the coating, but satisfactory results were not obtained.



FIG. 98.—Decoration on shell gorget. (Full size.)

Since the publication of the report, however, much attention has been given to this gorget, and we are now able to reproduce the greater part of the design (Fig. 98). This design, the lines of which exceed in delicacy those upon any shell gorget ever found by us, represents a figure, the head of which, unfortunately, is in part indistinguishable. The series of squares above the head is no doubt part of a head-dress, though its connection with the head is not traceable. Other details also are too indistinct to be included in the drawing.

This gorget evidently belongs to the same class as that of some from the Mississippi Valley, the claw-hands calling to mind the claw-feet of the fighting figures on the shell gorget from Tennessee shown by Holmes.²

With many burials were shell beads (with nineteen in the ground south of Mound D), some globular, almost one inch in diameter; some very minute. There were also small spool-shaped beads and tubular ones; and, in one instance, perforated, flat, pentagonal, and hexagonal sections of shell. With these beads in several instances were pearls perforated for stringing.

A beautiful little pendant of shell, to which we have already referred in describing the so-called "hoe-shaped" implements of stone, is in the form of a ceremonial axe with the ring at the end of the handle, for suspension (Fig. 99).

Several hair-pins of shell, as well as a number of objects resembling hair-pins but shorter and more rounded at the point, were encountered.

A small spool-shaped object of shell went to pieces after dis-

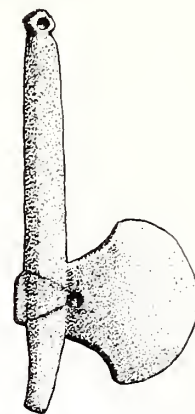


FIG. 99.—Pendant of shell representing ceremonial axe. (Full size.)

¹ See "Eagle." "Handbook of American Indians."

² W. H. Holmes. Rept. Bur. Amer. Ethn. 1880-81, Plate LXXIV.

covery; and a shell ornament resembling two globes fastened together, one somewhat smaller than the other was found.

With a burial was a mussel-shell (*Unio forbesianus*) showing wear at one end.

The skeleton of an adult, lying at full length on the back, had the skull resting in a bowl—an accidental position, not an urn-burial. In the bowl were several pebbles and a shell (*Dosinia discus*), perforated for suspension.

Apart from human remains in the ground south of Mound D, was a mass of mussel-shells, some single, some in pairs, among which were *Tritigonia tuberculata*, *Unio crassidens*, *Quadrula cornuta*, *Q. pustulosa*, *Q. pyramidata*.

With a burial were fragments apparently of a gorget, resembling calcite, which, however, proved upon microscopic examination to be *Finna* shell.

COPPER OBJECTS.

In our first investigation at Moundville, with the exception of one copper fish-hook, and a few fragments of sheet-copper lying in one place, no copper was found by us except in cemeteries on certain of the mounds, where many ceremonial axes of copper and ornaments of sheet-copper were unearthed. We know the followers of De Soto saw chiefs dwelling on mounds, with their people living around them on the level ground below. It is reasonable to suppose that the principal men were buried on the mounds and that these men were more richly endowed with objects of value than were their followers who were buried on the plain. However, on our second investigation, which was confined practically to the flat country around the mounds, while no artifacts of solid copper were found, we were fortunate enough to obtain some objects of sheet-copper and of wood copper-coated.

On the face of Burial Number 164, a full-length skeleton lying on the back, in the ground south of Mound D, was a most interesting pendant of sheet-copper, one side of which is shown in half-tone reproduction in Fig. 100; and a drawing of the other side, after we had ventured on additional cleaning, is represented in Fig. 101.

The upper part of the pendant has parts excised to form a six-pointed star within a circle. On the body of the star, *repoussé*, is a symbol to which we shall revert later. Below is an excised triangle; beneath



FIG. 100. — Pendant of sheet-copper, with Burial No. 164. One side. (Full size.)

which is part of an arm encircled by a string of beads and an extended hand bearing on it the open eye, all *repoussé*.

The symbol to which we have referred has been described by us in our first report¹ on Moundville, and by others, as the open eye. Subsequent discoveries have modified our views.

On our second investigation at Moundville, we found two water-bottles bearing the same symbol incised as a form of decoration (Figs. 41, 42). It also figures on the copper pendant we are describing and on a vessel (Figs. 37, 38) where it appears in a modified form beneath the tail of a woodpecker—a singular position for an eye.

On the hand which figures on the gorget is the unmistakable Moundville eye, found at that place on many occasions. It seems unlikely that different forms of the eye should be shown on the same gorget.

Furthermore, the symbol in question is always² represented with the angles in a vertical line, while the eye most familiar to the pottery, copper, and stone of Moundville, as well as the human eye which it represents, have the extremities in a horizontal line.

On the whole, whatever the symbol under discussion may stand for, it seems doubtful that it is a representation of the human eye.

In contact with the temporal bones of Burial Number 40 (the adult burial with the infant already described), probably three on each side, were pendants of sheet-copper, some in fragments. These pendants, which bear no decoration, resemble in form the arrowhead-shaped pendants, each

FIG. 101.—Pendant of sheet-copper, with Burial No. 164. Other side. (Full size.)

stamped with an eye and other markings, found by us at Moundville on our first visit, and figured in our first report. We described these pendants as representing arrowheads, but we are now inclined to believe that they are bird-head pendants. These particular ones perhaps represent the head of the woodpecker.

Pendants of the same type, but somewhat dissimilar in detail, were found by us in mounds of the Alabama River above and below Montgomery. One of these pendants, however, we believe represents the head of a quadruped—teeth being indicated.

¹ Fig. 102, page 195 ; Fig. 121, page 209.

² The copper gorget shown in our first report being too thickly coated with carbonate to permit of finding the holes for suspension, and thus to learn where the top of the gorget was, was arbitrarily placed in the photograph.

The reason for our change of opinion in regard to these pendants is that certain markings are present, which in the Moundville specimens seem to indicate the bill of a bird. Also the presence of the eye seems to point more to an animal than to an arrowhead; although, for that matter, there is no reason why an aborigine should not have placed an eye upon an arrowhead with the same intention as the Chinese have when painting it upon their boats.

A number of other bird-head pendants of sheet-copper, in fragments, some decorated with the eye, some not, were found at our second investigation.

We obtained also, with various burials, six entire, or almost entire, sheet-copper pendants, elongated-oval in outline, each having excised and *repoussé* decoration, including the swastika within a circle, and the triangle. These pendants, ranging between 6.1 inches and 2.6 inches in length, resemble in type some figured in our former report; one (Fig. 102) lay at the neck of an infant



FIG. 102.—Pendant of sheet-copper, with Burial No. 148. (Full size.)

(Burial Number 148), with a few shell beads.

Another pendant (Fig. 103) lay near the skull of Burial Number 65, a badly decayed skeleton of an adult, at full length on the back, in a grave cut into the solid



FIG. 103.—Sheet-copper pendant showing *repoussé* swastika. (Full size.)



FIG. 104.—Pendant of sheet-copper, with pearl attached. (Full size.)

clay of the base, in the ground south of Mound D. With the pendant, which has a *repoussé* swastika (all the others found having this cross through excision), was a small cuboidal mass of galena (lead sulphide).

Still another pendant (Fig. 104) lay near the skull of Burial Number 132, an aboriginal disturbance. This pendant has a large, perforated pearl, through which

vegetable fiber passes, attaching it on the outer side of the pendant over the two holes for suspension. Several other copper pendants found by us in fragments had pearls fastened in a similar way.

Burial Number 162, the skeleton of an adult, at full length on the back, from the ground south of Mound D, had shell beads at the shoulder and on the pelvis, encased in wood (as the copper found by us ordinarily is), a fine, large, sheet-copper

pendant below the chin, the broad end uppermost. Under the chin and over the right clavicle was an elliptical gorget of sheet-copper (Fig. 105) having a pearl fastened to it in the manner already described.

With an aboriginal disturbance were two sheet-copper discs, each about 1.25 inches in diameter, and each having a boss centrally perforated. These discs lay at the feet, the bone of one great toe being green by contact. With them was a mass of red paint, determined chemically to be hematite, and the knuckle-bone of a deer. These discs, which somewhat resemble those shown by LeMoyne as worn

on the legs of Florida Indians, were, however, probably ear-plugs transferred from their original position by an aboriginal disturbance.

Burial Number 34, a skeleton of an adult, fully extended on the back, had shell beads on both wrists. At each side of the head was a disc of wood, about 1.5 inches in diameter, with central boss, copper-coated. On the copper had been a covering of wood or bark, a part of which, badly decayed, still remains. Extending from the middle of the under side of each disc is a pin of bone, which, no doubt, worn through the lobe of the ear, connected the disc in front with another of some perishable material behind the lobe (Fig. 106).

Two pairs of discs, with pins, similar to those above described, were found—each pair with a burial.

One wooden disc, copper-coated, two inches in diameter—probably an ear-plug—lay with Burial Number 9 in the field near Mound M.

A most interesting object, probably a rattle, made of wood overlaid with copper, unfortunately fell into small fragments on removal.



FIG. 105.—Gorget of sheet-copper showing swastika, with pearl attached. (Full size.)



FIG. 106.—Ear-plug of wood and sheet-copper, with bone connection. (Full size.)

This object, which had undergone injury, probably through disturbance in early times, had one end missing. Seemingly it had been intended to represent the shell of a turtle. The width was 4.75 inches. Within was a cavity 1.6 inches by 2.25 inches, containing many small pebbles. Nearby were parts of various small objects of thin wood, copper-coated, too fragmentary for identification; also several pearls pierced for stringing and a representation of the regular Moundville eye, wrought from shell, which apparently had been inset—presumably in the rattle.

Another copper-coated rattle in small fragments (identified by the presence of pebbles) was found later in the investigation.

Fragments of sheet-copper found with various burials will not be particularly noted.

ASSOCIATED OBJECTS.

We shall now describe a few selected burials in order to convey some idea of the association of objects at Moundville.

Burial Number 20, the skeleton of an adult, extended on the back, in the field west of Mound R, had on the thorax, inverted over another vessel, a bowl with the head and the tail of a fish represented on opposite sides. The lower vessel, a bowl with a decoration of incised, encircling lines, lay on its side. A head, which formerly projected from this bowl, is absent through breakage in aboriginal times, the thrifty savages having been quick to utilize for the dead what was no longer desirable for the living. Under this bowl was a bone piercing implement. Immediately beneath the head of the skeleton, with which these vessels were, was the bottom of what had been a vessel of coarse, heavy ware.

In a pit in the same field as the foregoing lay three skeletons of adults. One at full length, face down, had a pot at the left shoulder. With the other two—one extended on the back, the other partly flexed on the right side—was nothing in immediate association.

Lying together in the pit, apart from the burials, were a vessel in many fragments; a fragment of sheet-copper; a ceremonial palette of fine-grained stone, 7.5 inches in diameter, with marginal notches, and incised circles on one side; part of a smoking-pipe of coarse sandstone, to which reference has been made; and an incisor of a large rodent, kindly identified by Prof. F. A. Lucas as the left lower incisor of a beaver (*Castor canadensis carolinensis*).

Burial Number 9, in the field near Mound M, an adult extended on the back, had near the knees a water-bottle. Four small, neatly-made arrowheads of chert, and a number of small fragments of the same material, to all of which reference has been made, were near by. Along the right leg were masses of hematite in a condition to use as paint. Above, and about one foot from the pelvis was a water-bottle. Shell beads were at the left wrist. Between the left elbow and the ribs were a small discoidal stone and a disc of sheet-copper. Near the head were sheet-copper pendants in fragments. In contact with the skull was the curious object of earthenware shown in Fig. 22, which at first seemed to us to have been made from

the base of a vessel, but which proved to be not the case. At the back of the skull was a bone pin, round in cross-section, about 7 inches long; and bits of sheet-copper. Nearby was another pin about the same length, stained with copper and having bits of sheet-copper in association. These pins probably fitted into ornaments of sheet-copper intended for use in the hair, of the kind found by us in Mound H at our first visit to Moundville. About one foot from the skull was a pendant of sheet-copper.

Burial Number 44, in the field west of Mound R, a skeleton of an adult extended on the back, had a small "celt" at the right elbow. Small shell beads were at the neck. At each side of the head were sheet-copper ear-plugs with bone pins, which have been described by us elsewhere in this report. Along the humerus were seven piercing implements of bone. Although these implements lay parallel one to another, their points were not all in the same direction. With the bone implements lay two small stone "celts," one of which is double-bladed.

In the ground south of Mound D, 1 foot 8 inches from the surface (in the made ground), was a pot-shaped oven of clay, burned hard to a thickness of about one inch. The diameter of the oven was 1 foot 6 inches; its depth, 7 inches. In it lay a large part of a cooking pot, covered with soot.

It is our belief that Moundville was at one time an important religious center and that the great mounds within the circle (which are too large, we think, to have been merely domiciliary) were connected with the cults held sacred at that place.

Prominent among these cults, presumably, was the worship of the sun. We know from Charlevoix, from du Pratz, and from Chevalier Tonti, that the worship of the sun still obtained in their time in regions not remote from Moundville, and that the divinity had temples and priests, and that sacred fire perpetually burnt as an emblem of the sun.

According to Tonti, the sun was the deity most commonly adored throughout all that region.

To the eastward of Moundville, in earlier times, the cacique Vitachuco told the Spaniards under DeSoto that they were "sons of the devil and not of the sun and moon, our gods;"¹ and in the Moundville region itself a follower of Tuscaloosa at Mauvila spoke of the sun and moon as deities.²

If then, Moundville was a religious center and heliotry was prominent among its cults, we would naturally expect the engraved designs on the earthenware to bear witness to the fact, since religion so often finds expression in the art of primitive peoples.

Let us consider the designs found on both our visits to Moundville,—the plumed or horned serpent; the eagle; the woodpecker; the six world—"quarters;" etc.

¹ "*La Florida del Inca.*" Garcilaso de la Vega (Madrid, 1722) Second Book, First Part, Chapter XXI, p. 54.

² *Ibid.* Book Third. Chapter XXVI. Page 149.

If we find these to be connected with sun-worship elsewhere, it is likely they had a similar significance at Moundville.

Among the Hopi,¹ back of sun-worship, we generally detect sky-god worship—the sun being only a symbol, mask, or shield, not the god of the sky or distinct from the sky-god.

The great horned or plumed serpent is a sky-god, sometimes referred to as a sun-god, the sun being a symbol of certain attributes of the sky-god.

Near the Hopi pueblo of Walpi, the spring Tawapa, supposed to be the home of the plumed serpent, is called the sun-spring.

The horned or plumed serpent cult, as a form of sun- and sky-worship, was widely distributed in ancient Mexico, as well as among the early inhabitants of the Mississippi valley. The plumed serpent and symbols probably representing the sun, appear together on a bottle made by the mound builders of Arkansas.²

In ancient Mexico Quauhtli, the eagle, was sacred to the sun. The sun himself was often called “the rising eagle” instead of his more common name, Tonahtih, “the lord of day.”

We are indebted to Miss H. Newell Wardle, of the Academy of Natural Sciences, for various references including that which Charlevoix makes to two figures of eagles on the roof of the sun-temple in the Louisiana-Mississippi region, and which Tonti describes as “a couple of spread-eagles which looked towards the Sun.”

Eagles' feathers are used with discs to represent the sun-god among the Hopi of Arizona (Fewkes). Among the Huichol Indians, descendants of ancient Mexicans, “young Mother Eagle” is intimately connected with the cult of the sun, and according to one account, is his mother.³ Among the same Indians, the giant woodpecker (first cousin to our ivory-bill of Moundville) is sacred to the sun.⁴

We have given elsewhere in this report our reasons for supposing it a possibility that the six world-“quarters” of ancient Mexico, and of the present Mexican and Pueblo Indians, were known to Moundville and figured on its vases.

If such is the case we can connect these directions with sun-worship among the Hopi, where the priest makes offering to the six world-“quarters,” of feathered strings, some of which are tied to an emblem representing the sun (Fewkes).

In our first report on Moundville we show on a vessel (Figs. 87, 88) haloed or winged suns, each crossed by an arrow, perhaps emblematic of the sun's rays, and possibly indicating the cult of the sun.

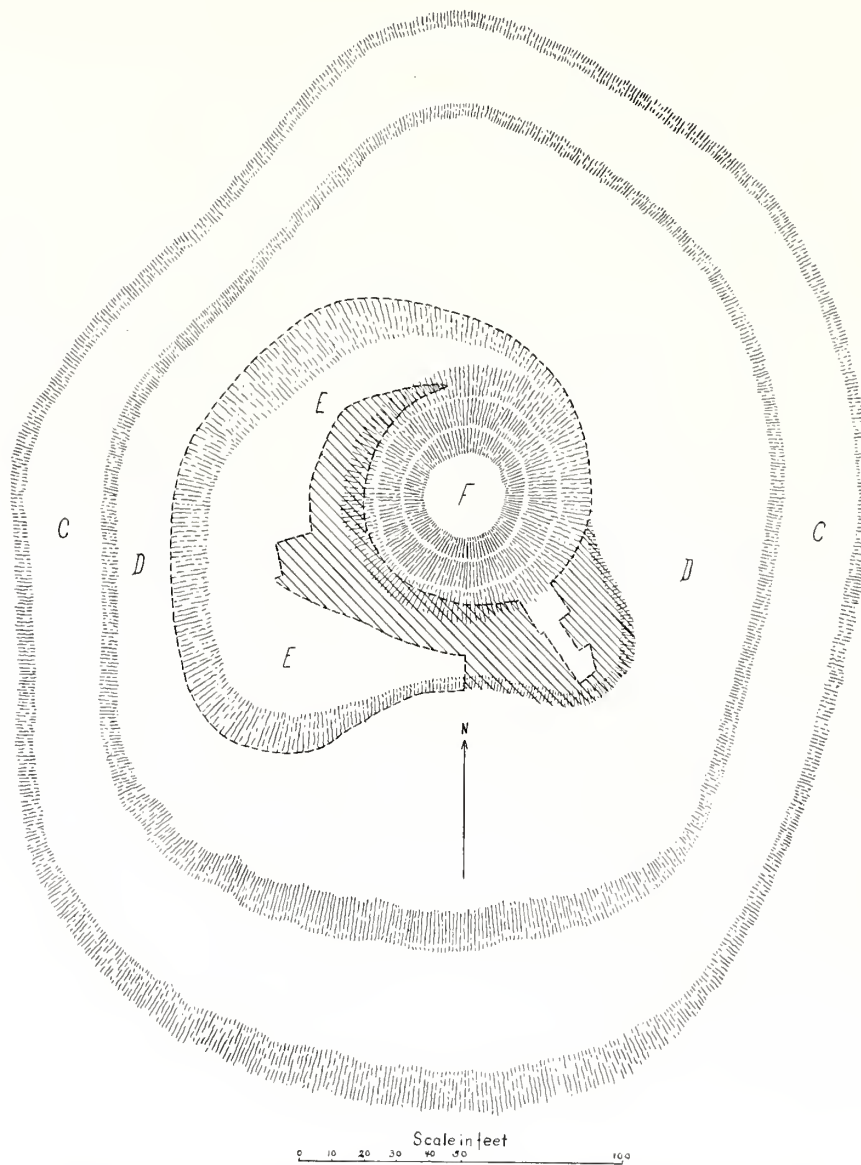
At all events, whatever opinion we may form in regard to the cults of prehistoric Moundville—an opinion which must be based largely on conjecture—we know the region to have been a most interesting one and the inhabitants of Moundville to have figured among the foremost in the art of the ancient peoples of what is now the United States.

¹ “Hopi Shrines near the East Mesa, Arizona.” *Amer. Anthropologist*, April-June, 1906. Dr. J. Walter Fewkes—and in private letters.

² W. H. Holmes. 20th An. Rep. Bur. Amer. Ethn., p. 91.

³ Dr. Carl Lumholtz. “Symbolism of the Huichol Indians,” p. 14, *Mem. Am. Mus. Nat. Hist.* Vol. III.

⁴ Dr. Carl Lumholtz. *Ibid.*, p. 11.



Place of burial, Crystal River. Portion dug at first visit, enclosed in broken line ;
at second visit, shown by diagonal lines.

CRYSTAL RIVER REVISITED.

BY CLARENCE B. MOORE.

Crystal River, on the western coast of Florida, about twenty-five miles south of Cedar Keys, was visited by us in the season of 1903. Considerable work with interesting results was done there near the well-known, rectangular shell-mound about three miles from the river's mouth. Full account of this work is given in our "Certain Aboriginal Mounds of the Central Florida West Coast."¹

By consulting the accompanying plan it will be noted that the scene of our investigation was an enclosure surrounded by an embankment, and that the enclosure consisted of first a level space, then much ground sloping upward and, finally, a well-defined mound rising above this slope.

At our first visit, though we dug away the entire mound and a large portion of the sloping ground, we left a part of the latter uninvestigated. Therefore we revisited the place of burial near Crystal River in the winter of 1906, with the kind consent of Mr. R. J. Knight, of the town of Crystal River, the owner of the property, to whom we were indebted for permission to investigate before.

The plan given herewith shows the embankment (C C); the level ground inside the embankment (D D); the slope (E E); and the mound proper (F). The area excavated by us at our first visit, with the exception of small portions around a few trees, is shown enclosed in broken line, while the part dug through at the time of our second visit appears in diagonal lines.

This second investigation, as the plan shows, included all the sloping ground that remained, consequently the entire slope and the mound proper have been dug down by us. The maximum diameters of the area investigated are 150 feet northeast to southwest and the same distance from northwest to southeast.

The digging was begun on the margin of the slope and was carried in at a depth considerably below the surface of the surrounding level ground. The height of the mound proper above the general level was 10 feet 8 inches, and above the elevated ground which surrounded it, it was from 5 feet 8 inches to 6 feet 8 inches.

Burials, almost invariably consisting of skeletons, were found by us at our second visit to lie as a rule under deposits of shell as we found them before. These deposits of shell did not extend to the surface, but lay under the superficial sand; and the deposits were not over single burials as a rule, but were layers covering a number of burials. In the southern and southeastern part of the elevated ground a layer of shell was almost continuous, and skeletons lay here and there beneath it. A few skeletons were found in sand apart from shell, but these were met with at the border of the mound proper, and probably belonged to the mound. When digging down this mound at our first visit we found that its con-

¹ Journ. Acad. Nat. Sci. of Phila., Vol. XII.

struction differed from the sloping ground around it in that deposits of shell were much less numerous in the mound, and consequently many burials were in clear sand apart from shell.

Bunched burials, only a few of which were found at our second visit, invariably lay in sand, and were always at a less depth than the shell deposits beneath which other forms of burial lay. However, these bunched burials were found where the mound joined the sloping ground and probably were left over from the great number of bunched burials which we found in the mound proper at the time of our first visit.

There were also in the sand and in the shell layers numbers of scattered and broken human bones. It was impossible for us to classify these as to form of burial and no account of them is taken in our enumeration.

During the second visit 186 burials were met with, as follows :

Full length on back, of which 27 were children.	115
Full length, face down,	1
Closely flexed on the right side,	9
Closely flexed on the left side,	8
Partly flexed on the right side, including 4 children,	18
Partly flexed on the left side, 2 being children,	17
Partly flexed on the back, knees up,	2
In caved sand,	5
Details omitted from field-notes, a child,	1
Infant skeleton badly decayed,	1
Bunched burial with one skull,	1
Bunched burials with two skulls,	2
Bunched burials with three skulls,	2
Bunched burial with seven skulls,	1

The three remaining burials, somewhat differing from the general types, will be particularly described :

(1) Adult, trunk on back, thighs turned upward and outward at an obtuse angle, legs flexed back at an acute angle, feet crossed.

(2) Adult, full length on back, legs crossed at knees.

(3) In a pit below the base, badly decayed skeletons of two infants, together.

Throughout the second investigation but two skulls¹ in a preservable condition were found. No skulls or parts of skulls showed evidence of cranial compression.

With a number of burials was sand tinted by admixture of red hematite, and a few burials lay with sand made yellow by the addition of powdered limonite.

The artifacts found during our second investigation are practically of the same character as those found by us before, though the experience of our former visit was emphasized, namely, that objects of superior quality had been placed in the mound proper and not in the elevated area which surrounded it. On this, the second visit, when our work was of necessity confined to the sloping ground, but

¹The Academy of Natural Sciences catalogue numbers 2231, 2232.

one earthenware vessel of superior ware and decoration was found, and this came from where the slope joined the mound proper and really belonged to the mound. Objects of crystal and of amethystine quartz, unbroken pipes, and copper (if we exclude a single object found in sand thrown out from the mound in our former visit) were not encountered on this occasion, though the yield of such objects was abundant at the time of our first investigation.

Artifacts, as before, were found with some burials and also scattered in sand and in the layers of shell. Possibly the scattered objects had belonged to burials represented by the disordered bones of which we have spoken; indeed it is likely that some of them did. We are inclined to believe that in some cases, also, artifacts



FIG. 1.—Sherds. Crystal River.

were placed in the shell layers collectively for the dead in common. At all events, on one occasion at least, a deposit of sand colored with hematite occurred in a layer of shell in connection with artifacts, and this deposit of colored sand was compact as if intentionally placed in the shells and not scattered as seemingly it must have been had it been an accidental accompaniment of disarranged bones.

Fragments of earthenware found during our second visit were inferior or were of medium excellence in the main, giving little evidence of what we know the

aborigines of Crystal River could accomplish in the potter's art. The small check-stamp is represented, as is the complicated stamp to a limited extent. A selection of sherds, recovered during our second visit is shown in Figs. 1, 2.

One fragment of earthenware is of much interest. At our former visit we were fortunate enough to find in the mound proper a part of what had been a large,



FIG. 2.—Sherds. Crystal River.

cylindrical vessel of excellent ware. This fragment, which bears an incised and boldly executed design representing an open hand, and small parts of other interesting symbols, is shown in Fig. 18 of our former report, in which we set forth how we searched without avail for other parts of this vessel.

We were fortunate enough to find, this time, in sand tossed out on our former visit, another fragment which undoubtedly belonged to the same remarkable vessel. The ware is the same; the curvature is identical; and the decoration, in our opinion, is from the same bold hand that executed the design on the fragment first found by us. Unfortunately the two fragments do not join, though both belong to the upper part of the vessel and include parts of the rim. We have, altogether, less than half the circumference of the upper six inches of a vessel originally about five inches in diameter. The original height of the vessel cannot be determined, though judging from parts of the decoration which are missing, the height must have been considerably in excess of that of the fragments found by us. The fragment last found is shown in Fig. 3.

Professor Holmes writes that the figures on these two fragments "are probably parts of a single design, or at least a group of related designs, which covered the entire exterior surface of the vessel. They are, indeed, interesting, as you suggest, and illustrate the versatile genius of the southern potter; but they are not generically distinct in character or execution from others. * * * *

"I do not see the least reason for attributing these figures to the whites or suspecting white influence. They are aboriginal in every way."

Two sherds belonging to a vessel of coarse, porous ware seem to have borne an interesting design where what may have been intended to represent the head of a bird, front view, appears in relief on the flaring neck of the vessel. At one side is seen an incised design perhaps showing part of a wing.



FIG 3.—Fragment of vessel. Crystal River. (About full size.)



FIG. 4.—Fragments of vessel. Crystal River. (About full size.)

River gave distinct evidence of contact with Europeans, and as we have found vessels with feet in many other mounds, the contents of which gave no proof of the influence of white men, we believe that aboriginal vessels with feet were not of necessity inspired by contact with Europeans.

We shall now describe in detail the vessels of earthenware found by us during our second visit, continuing the enumeration from the last number in our former report.

On the second sherd is probably part of another wing which, however, by no means corresponds with the first one (Fig. 4).

A small fragment of a vessel, found in this investigation (Fig. 5 and diagram, Fig. 6) seems, judging from form and decoration, to have been the tail on a vessel representing a bird. If such is the case, the vessel was a marked exception, as the life-form, so abundant in the pottery of the northwestern coast of Florida, is conspicuously absent from the earthenware of the central western coast.

A fragment of a monitor-pipe of earthenware was found apart from human remains.

Among fragments of earthenware met with at this visit, as before, were a number of parts of vessels which had possessed four feet, and several entire vessels each having four feet also. As nothing found by us at either visit to the aboriginal place of burial at Crystal



FIG. 5.—Fragment of vessel. Crystal River. (About full size.)

Vessel No. 27.—This vessel, found in separate fragments, somewhat scattered, but since put together, is a small, undecorated bowl of excellent ware, having the rim projecting horizontally, as shown in Figs. 25 and 33 of our former report. The base has sustained the mortuary mutilation often practised in Florida and in parts of Georgia and of Alabama, to “kill” the pot that its soul might be free to accompany that of the departed.

Vessel No. 28.—This vase, which lay on the chest of the skeleton of a child, is a rudely-made, asymmetrical vessel of eccentric shape, having carelessly-made line decoration (Fig. 7). There are two perforations for suspension. A small, round perforation is in the base. Carefully placed on this hole was a

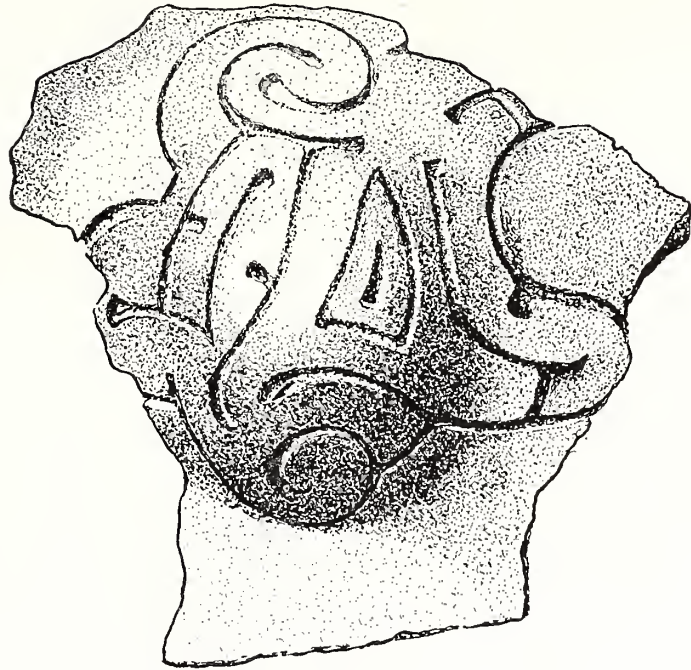


FIG. 6.—Fragment of vessel. Decoration. Crystal River. (Full size.)



FIG. 7.—Vessel No. 28. Crystal River. (Height 5 inches.)

neatly-made disc of earthenware which was distinctly not that portion of the base that had been punched out in order to make the opening.

Vessel No. 29.—An undecorated, imperforate bowl of inferior ware, found at the head of a skeleton.

Vessel No. 30.—A rude, undecorated bowl, from a shell layer, having a small, round perforation cut through the base.

Vessel No. 31.—A diminutive, imperforate toy pot with four feet, found apart from human remains.

Vessel No. 32.—An undecorated, imperforate toy vessel,

constricted around the middle and having a hole for suspension on two opposite sides of the aperture (Fig. 8).

Vessel No. 33.—A small, undecorated, perforate bowl of coarse ware, found at the ankle of a skeleton.



FIG. 8.—Vessel No. 32. Crystal River.
(About full size.)

Vessel No. 34.—A pot of coarse ware, undecorated save for notches at the margin, found near scattered human bones. The usual mortuary mutilation is present.

Vessel No. 35.—A graceful, oblate-spheroidal vessel of excellent ware (Fig. 9), with basal perforation, having a short, upright neck and scalloped rim projecting horizontally; found in caved sand. The interesting line and punctate designs, each of which appears four times on the vessel, are shown in diagram in Fig. 10.

Vessel No. 36.—A small, undecorated, imperforate pot with four feet.

Vessel No. 37.—A small, imperforate vessel having four lobes and rude line and punctate decoration,



FIG. 9.—Vessel No. 35. Crystal River. (Diameter 6.5 inches.)

with four feet (Fig. 11). A part, missing when the rest of the vessel was found, has been restored.

Throughout this second investigation we unearthed fifty-three drinking cups wrought from conch-shells (*Fulgur perversum*),¹ of which twenty-one are imperforate and thirty-three bear the mortuary mutilation of the base. This number of cups, however, by no means represents the total of such cups in the tract dug through by us, inasmuch as many, probably as many again as we have noted, were found badly decayed and broken into fragments. Five other drinking cups were made respectively from *Fasciolaria gigantea*, *Fasciolaria tulipa*, *Cassis cameo*, *Fulgur pyrum*, and *Fulgur carica*. The last shell is of extreme rarity on the western coast of Florida so far as our experience has gone.

Thirty-three chisels and gouges, made from columellæ of large marine univalves, were found during our work. As we noticed before, these columellæ occasionally had a wing or flange left at the cutting edge to increase the gauge.

Seven gouges were met with, made from roughly triangular sections of the body whorl of *Fulgur perversum*. Several of these are unfinished, the grinding of the cutting edge apparently having been omitted.

There were found also seven "celts" fashioned from the thick lip of *Strombus gigas*. Most of these, as well as the majority of other objects of shell found during this investigation, were badly affected by lapse of time, some being covered with a thick coating of patina, which, peeling off in places, left them in a rather sorry condition.

During the digging were found: clam-shells showing wear; triangular sections of clam-shells; cockle-shells (*Cardium*) perforated for the reception of handles; a conch (*Fulgur perversum*) with two perforations for insertion of a handle at right-angles to the shell.

No fewer than forty gorgets of shell were found during our second visit to Crystal River, and had the aborigines who lived near the great shell-heap made use of engraved designs on these ornaments, as was sometimes the aboriginal custom elsewhere, the yield would have been interesting indeed. Unfortunately, most of the gorgets from Crystal River lacked decoration

¹ Dr. H. A. Pilsbry kindly has determined all shells referred to in this paper.

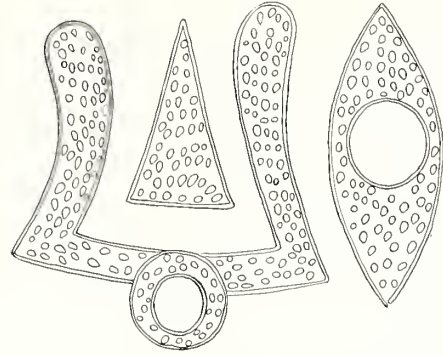


FIG. 10.—Vessel No. 35. Decoration. (Half size).



FIG. 11.—Vessel No. 37. Crystal River. (About full size.)

of any sort. The favorite form seems to have been a section of the body-whorl of a conch, sometimes including part of the shoulder, with one, two, or three perforations for suspension. Series of two and of three gorgets were found, usually with



FIG. 12.—Ornament of shell. Crystal River. (Full size.)

burials, and in one instance four gorgets lay together. Each series had gradation of size, the smaller lying within the larger. A few gorgets, wrought from considerable parts of body-whorls of *Fulgur*, somewhat resemble shallow drinking-cups, though the presence of small perforations for suspension places them in the gorget class. There are also circular gorgets variously perforated for suspension, some having large central holes in addition; and annular ones having a projection to which a cord could be attached. A few of the gorgets have on the convex side a series of concentric circles rudely executed—the only form of incised decoration met with on the gorgets at Crystal River. A selection of these gorgets is shown in Figs. 12, 13, 14, 15, 16.

As in our former investigation, the yield of shell pendants on our second visit was large, seventy-two being found—in some cases a number with a single burial. All are of the same type as those found during our preceding visit, and all are grooved at one end for suspension. On many are traces of bitumen by the aid of which the cord or sinew had been attached.

Two oblong strips of body-whorls of *Fulgur perversum* were

met with, each with a projection at one end for suspension, as shown in Figs. 17, 18.

In several instances small marine shells perforated for use as beads were found; and in one case a considerable number (*Marginella apicina*) lay with gorgets near scattered bones.

Where pendent ornaments were so much in vogue, one naturally would look



FIG. 13.—Ornament of shell. Crystal River. (Full size.)



FIG. 14.—Ornament of shell. Crystal River.
(Full size.)

FIG. 15.—Ornament of shell. Crystal River. (Full size.)

for an ample yield of shell beads, since by strings of these such objects often were suspended. With three burials only did a few small beads of shell occur; these beads and four large shell beads, also with burials, were the sum total of our discovery in the way of ordinary beads of shell. At our first visit to Crystal River this dearth of beads was noted and commented on.

Shell hair-pins, as before, were conspicuously absent.

An object of shell of eccentric form and problematical use, found by us at the time of the second investigation, is shown in Fig. 19.



FIG. 16.—Ornament of shell. Crystal River. (Full size.)

On one edge are nicks or tally marks such as often are found on ceremonial objects.

Four small ornaments of shell, found lying together with a burial, are shown in Fig. 20.

A shell, a young *Fasciolaria gigantea*, ground smooth over its entire outer surface, has a round hole on one side for suspension.

During the second investigation were found in the sand and in the shell deposits the usual hammer-stones, hones, flakes of chert, parts of arrowheads or knives, and fragments of "celts." There were also two small balls of stone and half of a bar-amulet of slate.

Four "celts" were found, the largest having a length of 6.5 inches. These were presented to Mr. Knight, the owner of the property, without determination of the stone of which they are made.



FIG. 17.—Ornament of shell. Crystal River. (Full size.)



FIG. 18.—Ornament of shell. Crystal River. (Full size.)

Altogether, fifteen lanceheads, arrowheads, and knives were met with, some with burials and some apart from human remains. Five lanceheads, four of chert,



FIG. 20.—Ornaments of shell. Crystal River. (Full size.)

one of quartzite, lay with a skeleton. The remaining points—nearly all lanceheads—are of chert save one, an arrowhead of chalcedony. Several of the lanceheads, none of which exceeds 6.5 inches in length, are beautifully wrought, one of medium size being finely pointed and barbed.

With many burials were sheets of mica of irregular outline, some of them dyed red from contact with hematite. Other sheets, in abundance, lay apart from human remains.

A beautiful little ornament representing a turtle (Fig. 21), perforated for suspension, doubtless came from the neighborhood of a skeleton, though the ornament

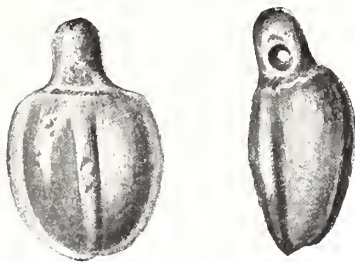


FIG. 21.—Pendant in form of turtle. Two positions. Crystal River. (Full size.)

apparently lay alone. The material probably is catlinite. Various ornaments of this stone from Minnesota were found during the first investigation at Crystal River.

Seventy-three stone pendants or charm-stones were found during our second visit, some with burials, others apparently not directly associated with human remains. These pendants, which do not present any particularly new form, are mostly of the limestone and of the ferruginous limestone found near the Crystal River region, and one is of chert. One pendant is of calcite; one is of quartz, and a few are of other hard stones not found in



FIG. 19.—Ornament of shell. Crystal River. (Full size.)

Florida. One of these pendants (Fig. 22) is almost a facsimile of the type of the two curious pendants of copper, each having two projections, found by us on our first visit to Crystal River and shown, one above the other, in Fig. 53 of our former report. A selection of four pendants found at the time of our second visit is shown in Figs. 23, 24, 25, 26.

In a deposit, together, were three pendants, probably of slate, of the same type as the long ones shown in Fig. 48 of our former report. Their lengths are 8.3 inches, 8.5 inches, 8.9 inches, respectively.



FIG. 22.—Pendant. Crystal River. (About full size.)



FIG. 23.—Pendant. Crystal River. (About full size.)



FIG. 24.—Pendant. Crystal River. (About full size.)

In Fig. 27 is shown a fossil shark's tooth which has been used as a pendant, as two encircling grooves, one at each corner of the root of the tooth, clearly prove. In a mound of the Georgia coast we found a fossil shark's tooth from which part of the root had been cut on two sides to facilitate hafting. The end of this tooth was splintered by use.



FIG. 25.—Pendant. Crystal River. (About full size.)



FIG. 26.—Pendant. Crystal River. (About full size.)



FIG. 27.—Fossil shark's tooth used as a pendant. Crystal River. (Full size.)

Several masses of coral, hemispherical in shape, lay in the sand or in the shell layer, the flat surface of each mass showing marks of use as a smoothing-stone.

In sand thrown out at the time of the former investigation was part of an ear-ornament of sheet-copper, of the form sometimes designated "spool-shaped." The under portion of the ornament is somewhat defective by reason of former breakage; the upper part is entire.

On the upper surface of this upper part is a thin sheet of material resembling iron rust. That this material was not deposited after the ornament was placed in the mound (and we know that bog-iron sometimes is deposited in this way) is shown by two facts: The material does not lie over the entire ornament, but is symmetrically placed on the upper, outer surface, just as silver plating has been found upon similar aboriginal ornaments; and, secondly, an even covering of decayed wood is still present above the material. Evidently an even deposit of bog-iron would not form on one part of an ornament alone, and especially below a portion protected by a covering of wood. Therefore the plating was artificial.

As the ores of iron are not malleable and, therefore afford no material from which a coating of the kind found by us could have been directly made, the original plating must have been of metallic iron.

Small fragments of this coating, analyzed by Dr. H. F. Keller, proved it to be hydrated oxide of iron, containing nickel. This hydrated oxide could well be a derivative of metallic iron which had rusted through and through, and this hypothesis is strengthened by the fact that the material on the ornament is magnetic, while hydrated oxide ores of iron are non-magnetic, as a rule.

As it is practically certain that at Crystal River we have to do with a pre-Columbian site, we must reckon with the fact that this sheet-iron was of aboriginal origin solely.

It was not in the power of the aborigines to recover the metal iron from iron ore, and terrestrial native iron is not found in various localities in masses as the native, metallic copper is found; consequently, it is necessary to explain how pre-Columbian aborigines in Florida became possessed of iron in its native, metallic form.

Fortunately this can be done with the aid of Prof. F. W. Putnam¹ and Dr. L. P. Kinnicutt,² who have shown that iron from the Turner group of mounds in Ohio is meteoric iron, containing a large percentage of nickel, and showing other distinctive features.

In the plating of our specimen, which is rusted through and through, and from which only minute fragments could be taken, exact determination of component parts could not be made, but Doctor Keller has noted the presence of nickel³

¹ Sixteenth Report, Peabody Museum, Cambridge, 1882.

² Seventeenth Report, Peabody Museum, Cambridge, 1883.

³ Doctor Keller found but a small quantity of nickel in our specimen, while the amount of nickel in the Ohio nuggets is relatively large. The analysis of the iron from Ohio was confined to nuggets of metallic iron. Doctor Keller thinks much nickel must have washed from the thin plating of our specimen during the transformation from metallic iron into iron rust.

in it, and to our mind there remains no doubt that the plating on the ear-ornament found by us at Crystal River was originally meteoric iron (which is metallic) similar to that found in the Ohio mounds in small masses and as plating on copper ornaments.

Professor Putnam writes :

"I have read your notice of the finding of an ear-ornament overlaid or covered on the upper surface with meteoric iron, and I am much interested in this very decided proof of the close connection of the prehistoric peoples of Florida who buried their dead in earth mounds, with those of the Ohio Valley region. You have shown, by many other objects which you have found in the Florida mounds, that this connection is exemplified by the arts of the people, and that there was much in common between some of the peoples of Florida and Ohio. This use of meteoric iron in covering the characteristic ear-ornaments, which are so common in the ancient mounds of Ohio and have not to my knowledge been found in the burial places of the recent Indian tribes, is very strong evidence of the unity of the ancient culture of the two regions. In other Florida mounds you have found such ear-ornaments made of copper. * * * The fact that the ancient Floridians made these copper ornaments in the same manner as did the builders of the ancient earthworks of Ohio, and that both used meteoric iron for covering the outer surface, is most instructive in tracing the connection of these ancient peoples.

"Similarly covered ear-ornaments have been found in considerable number in the Ohio mounds. I first found them on the altar of the Great Mound of the Turner Group and afterward with skeletons under the Great Mound of the Liberty Group (afterward known as the Harness Group). While Mr. Moorehead was working under my direction for the World's Columbian Exposition he found a number of these ornaments in a mound of the Clark, or Hopewell Group.

"Not only have we these ear-ornaments made in part of meteoric iron, but, on the altar of the Turner Group, we found other ornaments made of meteoric iron, as well as pieces of meteorites, while in the Liberty and Clark Groups celts made of meteoric iron were also found.

"This shows that the ancient people must have found masses of meteoric iron which they treated by hammering as they did native copper and native silver; and the great interest of your discovery in the Florida mound is that the people who made that mound at Crystal River had either found a mass of meteoric iron which they utilized in the same manner as did the ancient earthwork builders of Ohio, or else this ear-ornament which you found must have been obtained from the latter.

"It is probable that the meteoric iron from the Turner Group was derived from two distinct meteorites, as there is a slight difference between two of the smaller masses. The larger mass from the altar is known in the catalogues of meteorites, as the *Andersonville* Prehistoric Meteorite (*Andersonville* being the township in Ohio where the Turner Group is located in the Little Miami Valley)."

The latest discovery of meteoric iron in a mound is that of Wm. C. Mills, M. Sc., in the Edwin Harness mound, Ohio.¹

¹"Explorations of the Edwin Harness Mound." *Ohio Archæol. and Hist. Quarterly*. Vol. XVI, Num. 2.

Seventy-eight pointed implements of bone, made, as a rule, from the cannon-bone of the deer, split longitudinally, were unearthed during our second visit. Some doubtless were used as piercing implements, while some with flatter points probably served in basketry. Two slender implements, round in cross-section, show various small grooves at one end, worn by attachment of thread or fine cord. Among the pointed implements of bone are a number of lancets from the tails of sting-rays (*Trygon*). These objects, with their keen points, are admirably suited for use as piercing implements for which doubtless they were employed. Excluded from our enumeration of implements of bone were very many decayed fragments which in the past, no doubt, belonged to entire implements.

With finished implements often were unfinished ones, cannon-bones split longitudinally but not pointed.

Part of a lower jaw, which Prof. F. A. Lucas kindly has identified as belonging to the Virginia deer (*Odocoileus virginianus*), had been smoothed somewhat at its lower surface; the foramen had been considerably enlarged and all that side of the jaw in front of the four back molars had been cut away.

In several instances knuckle-bones of deer lay piled together.

Variously associated were: turtle-shells; five vertebrae of an unidentified fish, found together; a vertebra which Professor Lucas considers probably to have belonged to a grampus (*Grampus griseus*).

Professor Lucas has identified certain bones from the Crystal River place of burial as follows: "The front of cranium of carnivore and jaws, are from the same animal, the short-faced dog something like a bull-terrier that seems to have been a favorite with the Indians of the south and southwest."

As full details of the association of all objects found during the second investigation would occupy undue space, certain selected examples only will be given.

A skeleton lying full length on the back had, near the proximal end of the right humerus, a shell pendant. Three marine shells (*Oliva literata*), perforated for use as beads, were at the right elbow.

Another skeleton, also at full length on the back, had, under the legs, sheets of mica; sand, some tinged with hematite, some with limonite. Below the skull were: more pink sand; a pendant of limestone; a slab of compact rock as to the identity of which there is considerable doubt; one shell pendant: one pendant of a hard stone not found in Florida; four rudely triangular gorgets made from the body-whorl of *Fulgur*, each with one hole for suspension,—the two smaller ornaments lying within the larger ones; a rude section of shell with a central semiperforation. Under the head of one femur was an annular gorget of shell with a projection for suspension and having incised concentric circles on the convex side.

Still another full-length skeleton had at the left forearm, in a small pile, six astragali of the deer and two shells (*Oliva literata*) perforated for suspension.

At the head of a skeleton partly flexed on the left side was a shell drinking-cup within a turtle-shell and a neatly-made shell pendant within another drinking-cup of shell.

Near the skull of the skeleton of a child, six or seven years of age, were one shell chisel and eight stone pendants.

With a full-length burial were: twenty-one pointed implements of bone, entire, and seventeen of the same material, some broken, some partly decayed; five lancets of the sting-ray (*Trygon*); a lot of marine shells (*Macrocallista gigantea*); a fragment of a columella of *Fulgur*; bits of stone; sand colored red with hematite and yellow with limonite; a number of astragali and phalanges, with part of a jaw-bone, of a deer. All this deposit lay above the legs and feet of the skeleton.

Near the skull of a skeleton at full length on the back were four lanceheads of chert and one of quartzite; also a mass of fossil wood about 4.5 inches long, square in cross section.

With certain disconnected bones in the shell layer was the skull of a child near which were two pendants, one of stone, the other of shell, the grooved ends toward the skull.

Near the skull of the skeleton of a child, lying full length on the back, were a pendant of shell and one of stone. The grooved end of one of these pendants lay toward the skull, while the corresponding end of the other was directed oppositely. Incidentally, we may say here that the exact position of pendants in relation to parts of the human skeleton was a matter carefully noted by us during our work at Crystal River. As a rule, when pendants were not ceremonial deposits apart from human remains, or were not scattered as a result of aboriginal disturbance but lay immediately associated with a skeleton, the grooved end of the pendant lay nearest the bones. Sometimes, however, the grooved end was directed outward. This variety of position, we think, readily can be accounted for by calling to mind that a suspended ornament hanging taut would have the grooved end, around which the cord was placed, directed toward the point of suspension; while, should the strain be removed, as would be the case were the skeleton placed in a recumbent position, the upper ends of some of the pendants could swing outward.

A skeleton lying at full length on its back had a shell drinking-cup near the pelvis, and under the right knee nine marine shells (*Macrocallista gigantea*), the valves tightly closed, and pierced for suspension at points below the muscular attachment.

A skeleton partly flexed on the left side had on the thorax eight chisels and gouges, three made from the axis of the conch and five from its body-whorl.

A skeleton at full length had near the skull one shell pendant and one of stone. Over the shoulder and at the pelvis were fragments of mica. A stone pendant lay below the shoulder. On the thorax was part of a lancehead of chert. Above the chest were two pointed implements of bone. At the right forearm was a mass of green material kindly identified by Dr. George P. Merrill, Head Curator of Geology, United States National Museum, as arenaceous clay colored by iron. Sand dyed with hematite lay at the feet of the skeleton.

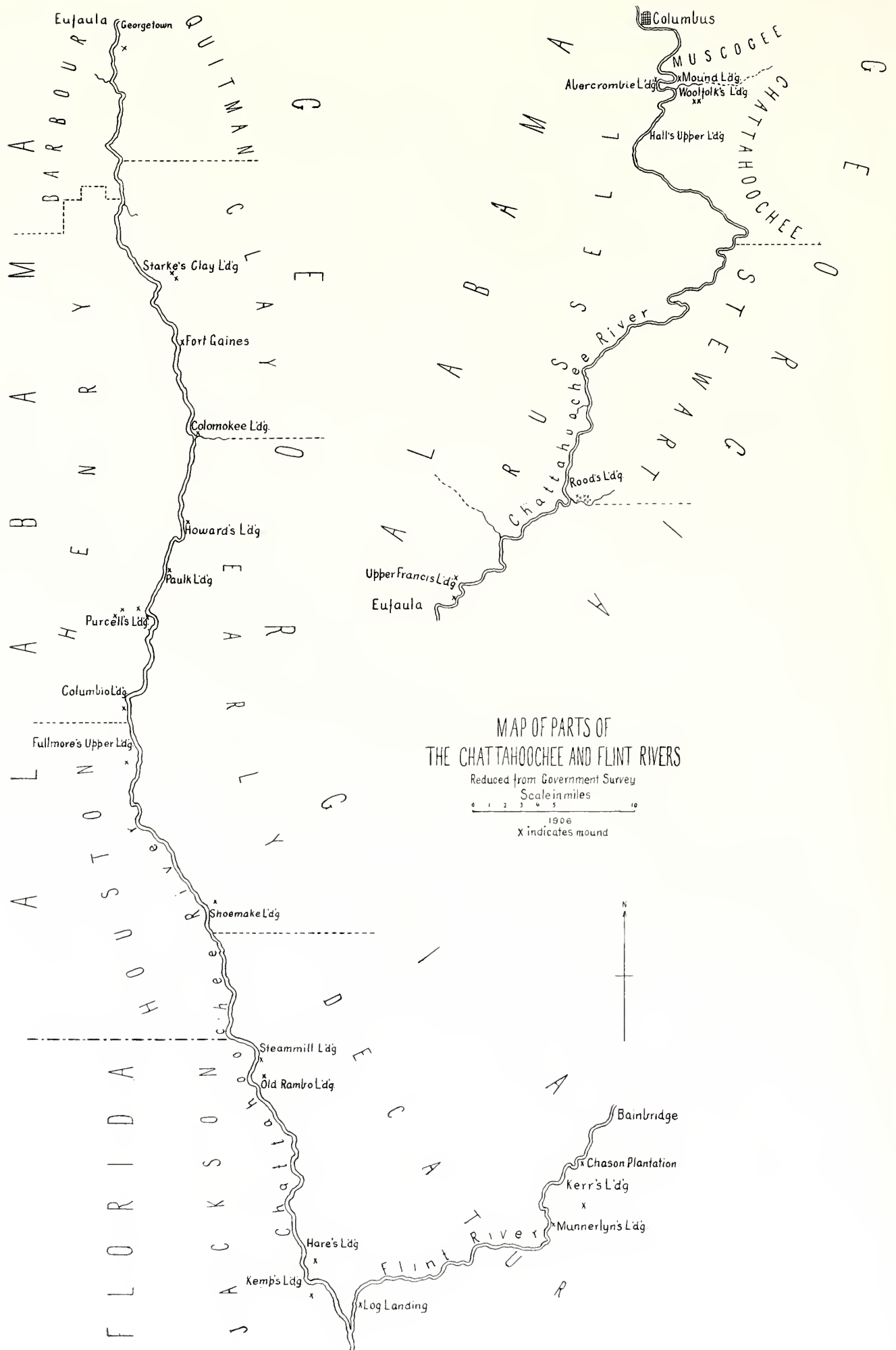
A noteworthy fact to which reference has hitherto been made is that nearly all objects of the greatest interest found in the entire investigation came from the

mound proper. In fact, in comparison with the yield of the mound proper, nothing of marked interest came from the sloping area which surrounded it.

The mound itself, as we have said, differed in composition from the sloping ground in that the mound contained much less shell and to a large extent was made up of clear sand. This sand continued to the very base of the mound on the general level of the surrounding surface, so that it seems clear that the mound was built first, and later surrounded, as to its lower part, by the sloping ground.

We know that when the mound proper was built a better class of objects was placed with the dead. Either the possessions of those living at that earlier period were of a higher grade than those of the persons who later built the cemetery around the mound, or else the makers of the mound proper were endowed with a greater spirit of liberality than were those who came later.

Before leaving Crystal River, six trial-holes, some 4 feet by 4 feet, some 4 feet by 5 feet, were made in the southern part of the embankment marked C C on the plan. Two skeletons were found, and one small pendant of limestone was met with in sand thrown out from one of the excavations.



MOUNDS OF THE LOWER CHATTAHOOCHEE AND LOWER FLINT RIVERS.

BY CLARENCE B. MOORE.

Chattahoochee river, having its source in northeastern Georgia, continues in a southwesterly direction until it reaches the middle of the western boundary of the State at Westpoint; thence, flowing in a southerly direction, it forms the boundary between parts of Georgia and of Alabama and, later, between parts of Georgia and of Florida, until its union with the Flint river when, as the Apalachicola river, it continues in a southerly direction to the Gulf of Mexico.

Flint river rises approximately in the central part of Georgia and keeps a southerly and southwesterly course to its junction with the Chattahoochee.

This report treats of the aboriginal remains of part of the Chattahoochee and of part of the Flint rivers, in each case our journey being northward from the junction of the two streams, at which point our investigation of a previous season had come to an end.¹

The portion of the Chattahoochee covered by us (see map) lies between River Junction, Fla., and the city of Columbus, Ga., a distance of 161 miles by water; and that part of the Flint investigated extends from the Junction to Bainbridge, Ga., 28 miles up the stream,—in each case our work being continued practically to the end of navigation.

As in former years, two agents, one of whom is thoroughly familiar with mound investigation, were sent out in advance of us thoroughly to cover our field of work that the exact situation of mounds and the names of their owners might be known to us, previous to our coming, thus saving a great expenditure of time.

On the Chattahoochee the presence of burial mounds was noted by us as far up as Columbia, Ala., a distance of 48 miles by water. Thenceforward mounds of a domiciliary character only were met with, having near them, doubtless, cemeteries in level ground. These cemeteries, however, we failed to find, save in one instance.

It is interesting to note, in the burial mounds of the lower Chattahoochee, the continuance of certain customs which have been practised in the mounds of the northwestern Florida coast and of the Apalachicola river, namely, the ceremonial deposit of earthenware in the eastern part of the mound for the dead in common, the use of life-forms in earthenware, excisions in the body of vessels, and the mortuary perforation of the base.

As to the mounds of lower Flint river, so few were found by us that no definite conclusion can be reached.

All measurements of earthenware vessels herein given are approximate only, and reduction of size in the illustrations is linear.

¹ See "Certain Aboriginal Mounds of the Apalachicola River." *Journ. Acad. Nat. Sci. of Phila.*, Vol. XII.

Dr. M. G. Miller, as during all our previous archaeological investigations, had charge of the anatomical part of the work of the expedition herein described.

The warm thanks of the Academy are tendered those owners of mounds on the Chattahoochee and on the Flint who kindly placed their mounds at its disposal.

MOUNDS AND SITES INVESTIGATED ON CHATTAHOOCHEE RIVER.

- Mound near Kemp's Landing, Jackson County, Florida.
- Mound below Hare's Landing, Decatur County, Georgia.
- Mound near Old Rambo Landing, Decatur County, Georgia.
- Mound near Steammill Landing, Decatur County, Georgia.
- Mound near Shoemake Landing, Early County, Georgia.
- Mound near Fullmore's Upper Landing, Houston County, Alabama.
- Mound below Columbia, Henry County, Alabama.
- Mounds near Purcell's Landing, Henry County, Alabama (4).
- Mound near Paulk's Landing, Early County, Georgia.
- Mound near Howard's Landing, Early County, Georgia.
- Mound near Colomokee Landing, Clay County, Georgia.
- Mound at Fort Gaines, Clay County, Georgia.
- Mounds near Starke's Clay Landing, Clay County, Georgia (2).
- Mound near Georgetown, Quitman County, Georgia.
- Mound above Eufaula, Barbour County, Alabama.
- Mound near Upper Francis Landing, Barbour County, Alabama.
- Mounds near Rood's Landing, Stewart County, Georgia (8).
- Dwelling site near Hall's Upper Landing, Chattahoochee County, Georgia.
- Mounds near Woolfolk's Landing, Chattahoochee County, Georgia (2).
- Mound and cemetery at Abercrombie Landing, Russell County, Alabama.
- Mound at Mound Landing, Muscogee County, Georgia.

MOUNDS AND SITES INVESTIGATED ON FLINT RIVER.

- Mound near Log Landing, Decatur County, Georgia.
- Mound near Munnerlyn's Landing, Decatur County, Georgia.
- Mound near Kerr's Landing, Decatur County, Georgia.
- Burial-place on the Chason Plantation, Decatur County, Georgia.

MOUNDS AND SITES INVESTIGATED ON CHATTAHOOCHEE RIVER.

MOUND NEAR KEMP'S LANDING, JACKSON COUNTY, FLA.

The mound, in high swamp, dry at low stages of the river, on property of Mr. M. A. Warren of DeFuniak Springs, Fla., lay about one mile in a SSE. direction from the landing. Its height was about 4.5 feet; its basal diameter, 33 feet. A broad trench had been dug in from the western side through the center of the

mound, previous to our visit, leaving, however, the eastern part intact. What was left of the mound was leveled by us.

Human remains found were confined to a small fragment of a skull.

Almost at the eastern margin, and extending to the northeast, began the usual ceremonial deposit of earthenware, put in for the dead in common, such as we have fully described in our reports on the mounds of the northwestern Florida coast and of the Apalachicola river. This particular deposit presented no new features. It began with sherds and parts of vessels and continued inward a number of feet, the latter part of the deposit being made up of groups of two or three vessels placed together, at short distances apart. Owing to the nature of the mound, which was of clay, no vessel was recovered entire, though a number were represented by a full complement of parts. There was little variety of form, pots and bowls being met with exclusively. The ware is inferior. Gritty tempering is absent. Decoration, when present, consists of the small check-stamp; the complicated stamp, faintly impressed; very rude incised line decoration in two instances in sherds; in one case an incised decoration of wavy lines and punctate markings as shown in Fig. 1. The rim of this vessel, which has been slightly restored in places, is not even, but rises and is depressed in the manner of the decoration beneath.



FIG. 1.—Vessel of earthenware. Mound near Kemp's Landing. (Diameter 5.7 inches.)

All vessels from this mound are small or of medium size, and all, including those represented by fragments, so far as could be determined, had undergone the mortuary perforation of the base so well known in Florida and in parts of Georgia and of Alabama, which was supposed to "kill" the pot and thus free its soul to accompany the souls of those for whom the mound was built.

MOUND BELOW HARE'S LANDING, DECATUR COUNTY, GA.

This mound, in high swamp, about a mile and a half in a southeasterly direction from Hare's Landing, on property of the Stuart Lumber Company, of Brinson, Ga., had a height of 5 feet, a basal diameter of 48 feet.

The mound, seemingly intact, symmetrical, circular as to its base, was composed of sand in the outer parts and of sand with a considerable admixture of clay farther in. With the exception of a comparatively small portion of the outer western part, it was completely leveled by us.

Human bones, so badly decayed that at times minute fragments alone remained, were found in forty-three places, from 2 feet below the surface down to the base,

In several instances the bunched burial was indicated, as was the flexed form of burial—parts of one at least showing a close flexion of a skeleton lying on the back.

In a number of cases charcoal lay with the bones, as did occasional masses of phosphate rock. Similar masses lay here and there in the mound, not closely associated with burials, though possibly in some instances accompanying bones had disappeared through decay.

Two feet from the surface, well in from the margin but not occupying a central place in the mound, were the remains of what probably had been a flexed burial, below which was a thin layer of charcoal extending beyond at each end. Immediately above the bones, for the full length of the burial, were masses of phosphate rock. A similar mass lay beside the skull.

With the exception of several bits of earthenware, no artifacts accompanied the bones in this mound.

Separately in the soil were flakes and chips of chert; decayed fragments of conch-shells; several pebbles of fair size, one showing marks of use; a mass of galena (lead sulphide) about the size of a child's fist, showing facets on all sides but one, on which was a slight depression; mica in two places; two handsome "celts" of hard rock not found in Florida, the larger 12.25 inches in length.

In the eastern marginal part of the mound were, here and there, a few fragments of pottery together. Thirteen feet in, in the same line as the deposits of fragments, vessels or large parts of vessels, all badly crushed with but few exceptions, were encountered together in twos and threes. With these were occasional decayed fragments of shell drinking-cups.



FIG. 2.—Vessel No. 2. Mound below Hare's Landing. (Diameter 7.1 inches.)

These small deposits of vessels of shell and of earthenware continued almost to the center of the mound. The vessels of earthenware and large parts of vessels, nearly all of inferior ware, and all, so far as could be determined, having the usual basal perforation, numbered twenty-eight in the aggregate. The decoration consists variously of a uniform coat of red paint; incised work on several occasions; the small check-stamp; the complicated stamp faintly and carelessly impressed; punctate markings.

We shall describe in detail vessels showing any features of interest, omitting the great majority which consists of pots and bowls, either plain or bearing commonplace decoration.

Vessel No. 2.—A bowl with punctate decoration shown in Fig. 2.

Vessel No. 3.—This beautiful vase of eccentric form, graceful outline, and excellent ware, bears a coating of red paint (Fig. 3). In addition, there is a well-executed incised decoration shown diagrammatically in Fig. 4. This vessel has a double base—the body proper having one, and the extension below it having another. Both have the usual mortuary perforation.

Vessel No. 4.—An effigy vessel about 12 inches in height, showing the human form, found in many fragments, but since joined together. Unfortunately the nose is missing. The figure is carelessly made and is distinctly inferior to similar vessels from the northwestern Florida coast.

Vessel No. 6.—A vessel of yellow ware, with ovoid body (Fig. 5), bearing a rather carelessly made punctate and incised decoration shown in diagram, Fig. 6.

Vessel No. 7.—This interesting vessel (Fig. 7), belonging to the ceremonial mortuary class, with excisions in the body (a variety first made known by us in our reports of the mounds of the northwestern Florida coast and of the Apalachicola river), was found in fragments which have since been cemented together, with slight restoration involving no important part.

The base is missing. The ware, porous and generally inferior, as is usually the case with vessels made expressly for interment with the dead, is decorated with red paint. On one side is a handle or decoration consisting of the head of a long-billed water-bird.



FIG. 3.—Vessel No. 3. Mound below Hare's Landing. (Height 7.5 inches.)

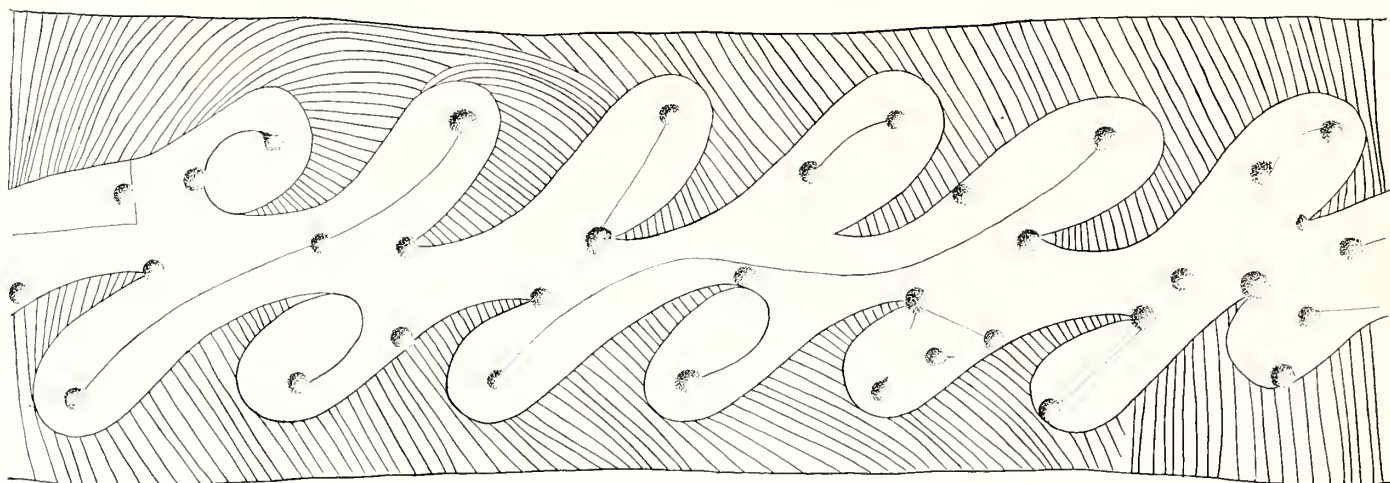


FIG. 4.—Vessel No. 3. Decoration. (About half size.)

The discovery of this type of vessel in this mound marks, we believe, its northernmost occurrence thus far reported.



FIG. 5.—Vessel No. 6. Mound below Hare's Landing. (Height 6.5 inches.)

Vessel No. 8.—Another ceremonial vessel, with open-work decoration, consisting in part of two excised leg-symbols on two opposite sides, bears a projecting head of a quadruped. There are traces of red pigment on the outer surface of this vessel (Fig. 8).

Vessel No. 9.—A ceremonial, mortuary vessel (Fig. 9) bearing slight traces of crimson pigment on the outside. Excised feather-symbols, upright and horizontal, surround the vessel, though no bird-head appears on the rim. A small part of this rim, not recovered by us with the rest of the vessel, may possibly be thought to have supported a plastic model of a bird's head, though we deem this most

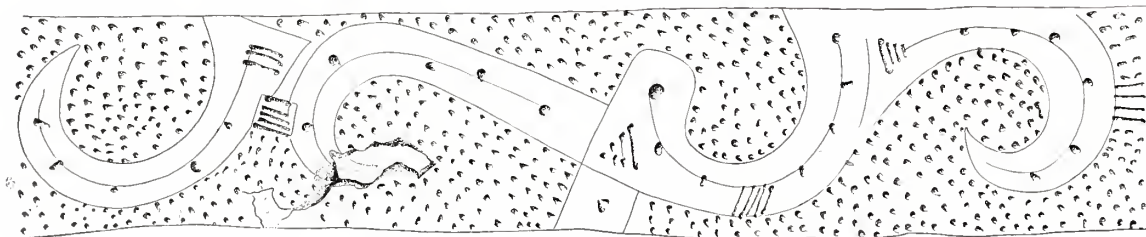


FIG. 6.—Vessel No. 6. Decoration. (About one-third size.)



FIG. 7.—Vessel No. 7. Mound below Hare's Landing. (Height 11.9 inches.)

unlikely, as the missing part of the rim is small, and surrounding parts show no thickening for the support of the head as almost certainly they would do had a head been present. Moreover, the feather-symbol (like others) is often used independently in decoration.



FIG. 8.—Vessel No. 8. Mound below Hare's Landing. (Height 10.4 inches.)

Vessel No. 10.—A graceful, mortuary vessel (Fig. 10) of the ceremonial class, with open-work decoration showing the feather-symbol, and having remnants of crimson paint on the outside. On one side of the opening the neck and head of a bird, from which the bill is missing, project upward.

The four ceremonial vessels from this mound, all of which were found in fragments, have in each case a hole knocked in the base and not made there previous to the firing of the clay, as is often the case with ceremonial vessels of this class.



FIG. 9.—Vessel No. 9. Mound below Hare's Landing. (Height 7 inches.)

Vessel No. 15.—Oblate-spheroidal in shape, found in fragments since joined together, having a low, upright rim. The decoration consists of a coating of red paint, inside and out.

Vessel No. 18.—This perforate vessel, shown in Fig. 11, of excellent yellow ware, has for decoration below the rim a band of punctate markings.

Vessel No. 27.—An imperforate vessel (Fig. 12) of good ware, found in fragments but since repaired. A deep depression around a central boss on each of the two longer sides is the only decoration. There are two perforations on one side slightly below the rim.



FIG. 10.—Vessel No. 10. Mound below Hare's Landing. (Height 13 inches.)

In one vessel from this mound was a small sheet of mica; in another was part of a cannon-bone of a deer.

MOUND NEAR OLD RAMBO LANDING, DECATUR COUNTY, GA.

In a cultivated field on a plantation of Mr. J. L. Dickenson, of Donalsonville, Ga., is a mound about one-half mile in a NNE. direction from Old Rambo Landing. Correct measurements of this mound were difficult to obtain. Not only is the mound on a decided slope, but its lower parts at least have long been under cultivation and are much spread in consequence. A diameter of 65 feet for the roughly circular base, and a height of 6 feet for the mound are the approximate dimensions. There had been previous digging to a limited extent. Considerable inves-



FIG. 11.—Vessel No. 18. Mound below Hare's Landing. (Height 4.8 inches.)

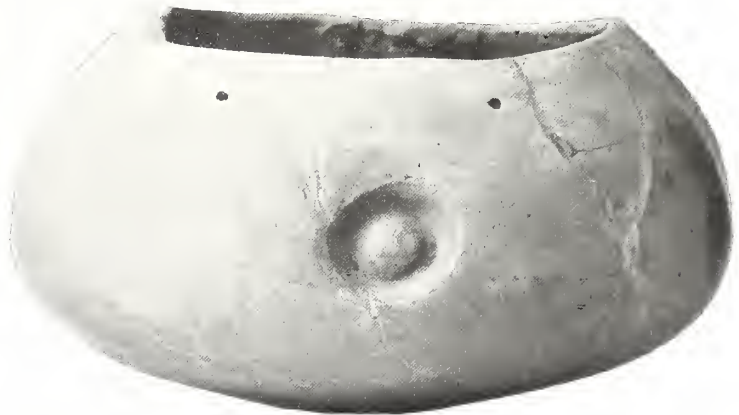


FIG. 12.—Vessel No. 27. Mound below Hare's Landing. (Length 6.4 inches.)

tigation on our part indicated that the mound, which was of sandy clay, had been made for domiciliary purposes.

MOUND NEAR STEAMMILL LANDING, DECATUR COUNTY, GA.

Three-quarters of a mile below Steammill Landing, and about 100 yards from the bank, on another plantation belonging to Mr. Dickenson, is a low and much-spread mound of clay in a cultivated field. No success rewarded our digging in this mound.

MOUND NEAR SHOEMAKE LANDING, EARLY COUNTY, GA.

In a cultivated field, belonging to the plantation of Mrs. Blanche Chaney, of Jakin, Ga., about one mile in a northerly direction from Shoemake Landing, was a mound about 2 feet high and 45 feet across its circular base, at the time of our visit. The mound, of sand, had been long plowed over, and probably considerably reduced in height. It had been dug into to a great extent previous to our visit,

including a trench across from west to east and a central excavation more than 15 feet in diameter.

While we were well aware that little but gleanings could await our search, we practically dug the mound through a second time, finding in some small, undisturbed parts a few fragments of decaying human bones.

Evidently there had been in the eastern part of the mound the customary ceremonial deposit made for the dead in common, inasmuch as many sherds, and



FIG. 13.—Sherd. Mound near Shoemake Landing. (Half size.)

large fragments of vessels which had been broken presumably by the previous digger, were found in disturbed sand. The ware, which ranges from ordinary to excellent, when decorated, bears: the small check-stamp; the complicated stamp, one variety being shown in Fig. 13; rude punctate decoration; incised parallel lines; incised decoration of complicated design, superior in every way.

Lying on its side, so that previous digging had passed above it, was an interesting vessel about 11 inches in height, and with a maximum diameter of 8.3 inches,

representing an owl (Figs. 14, 15). The head, incised and in relief, has the beak missing through former breakage. The wings are incised, as is the tail, on each side of which is the leg-symbol so well known on the western coast of Florida and elsewhere. The feathers are represented by punctate markings as hair sometimes is indicated in early Egyptian art.¹ The entire decoration on this interesting vessel is shown diagrammatically in Fig. 16. It has not been found possible to draw the decoration exactly to scale and to preserve the resemblance to the original at the same time; consequently the periphery of the field has been somewhat enlarged.

The base of this vessel has been knocked out, and many scattered fragments of earthenware from the mound indicated a mutilation of other vessels.

MOUND NEAR FULLMORE'S UPPER LANDING, HOUSTON COUNTY, ALA.

This mound, apparently untouched previous to our investigation, with the exception of a small hole in the center and a certain leveling due to recent cultivation, was in the southern end of a large corn-field, about a mile and a half in a SSW. direction from Fullmore's Upper Landing, on property of Mr. Coy Thompson, of Columbia, Ala.

The mound, which was completely demolished by us, had an average height

¹ Jean Capart, "Primitive Art in Egypt," Figs. 128, 129.

of about 3 feet, but being on the side of a natural slope its height varied decidedly according to the side whence the measurement was taken.

In a number of places in the mound were a few fragments of decaying human bones, but insufficient in form and quantity to indicate the character of burial. With



FIG. 14.—Vessel of earthenware. Mound near Shoemake Landing. (Height 11 inches.)



FIG. 15.—Vessel of earthenware. Side view. Mound near Shoemake Landing. (Height 11 inches.)

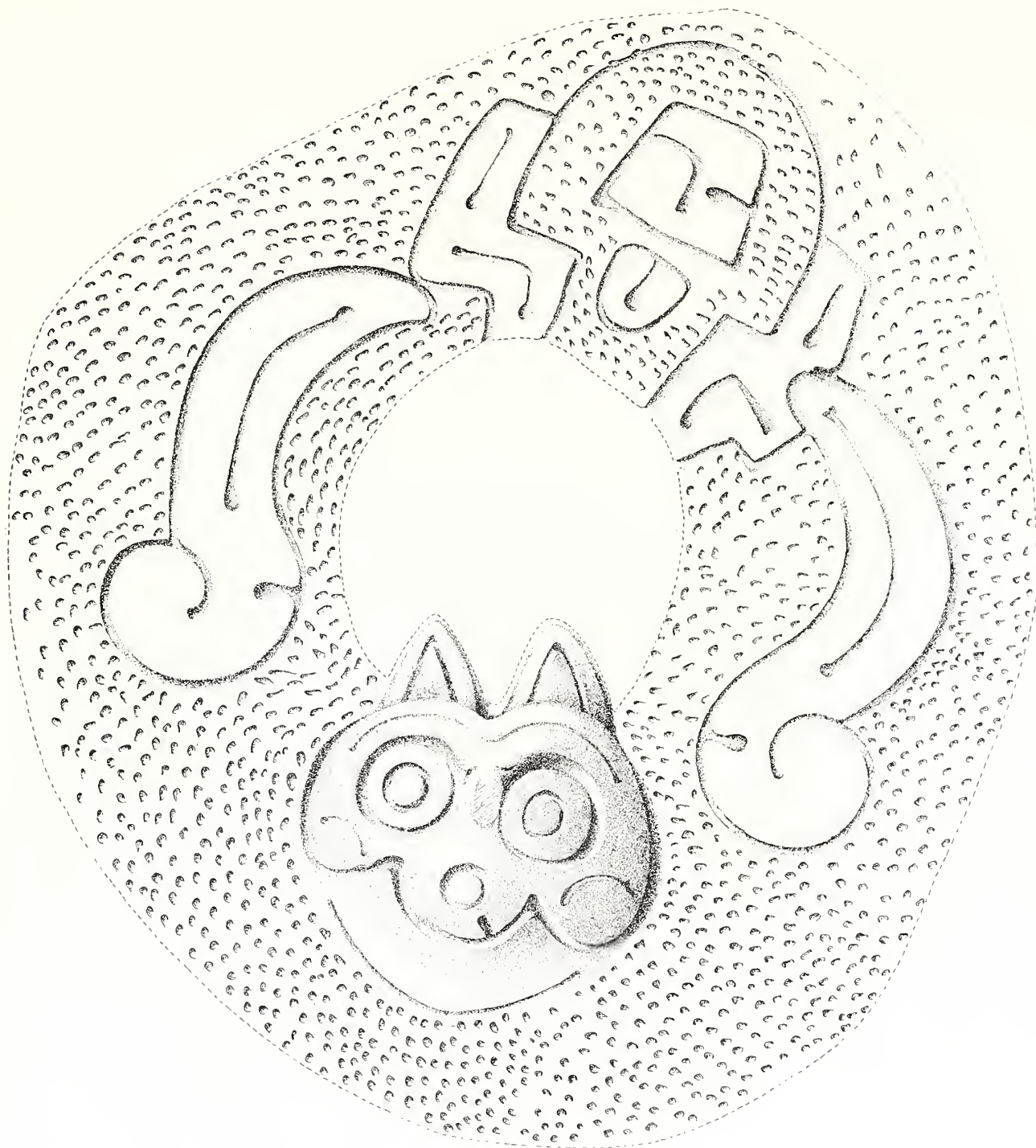


FIG. 16.—Decoration on vessel. Mound near Shoemake Landing. (About half size.)

the bones were fragments of decomposed chert,¹ some about the size of the human head, some somewhat larger, others smaller. The number of these masses with what had been a single burial ranged from one to four. Numerous other masses of this stone were present in the mound, perhaps marking places where burials had wholly decayed.

Beginning at the eastern margin of the mound and continuing well toward the center, was the usual deposit of earthenware consisting of: scattered sherds; fragments of parts of vessels, placed together; vessels in fragments; considerable parts of vessels; and a few entire ones.

The decoration presented no new features. When the incised variety was present it was inferior to the best met with on the Chattahoochee.

Excluding the most ordi-



FIG. 17.—Vessel No. 1. Mound near Fullmore's Upper Landing. (Height 7.5 inches.)

nary types present in the mound, we shall describe the others in detail.

Vessel No. 1.—A vessel of compact, yellow ware with decoration of incised, encircling lines, cross-hatch, and punctate marking, shown in Fig. 17. A part of the vessel, missing through early breakage, has been restored.

Vessel No. 2.—A vessel of good, yellow ware (Fig. 18). The base, which is missing, was almost flat. The incised and punctate decoration is shown diagrammatically in Fig. 19.

Vessel No. 3.—Almost ovoid in shape, decorated inside and out with a uniform coating of red pigment. In addition, the upper part of the vessel



FIG. 18.—Vessel No. 2. Mound near Fullmore's Upper Landing. (Height 4.3 inches.)

¹ Kindly identified by Dr. George P. Merrill, Head Curator of Geology, United States National Museum, Washington, D. C.

bears evenly distributed, punctate markings. Parts of this vessel, missing when the rest were found, have been restored.

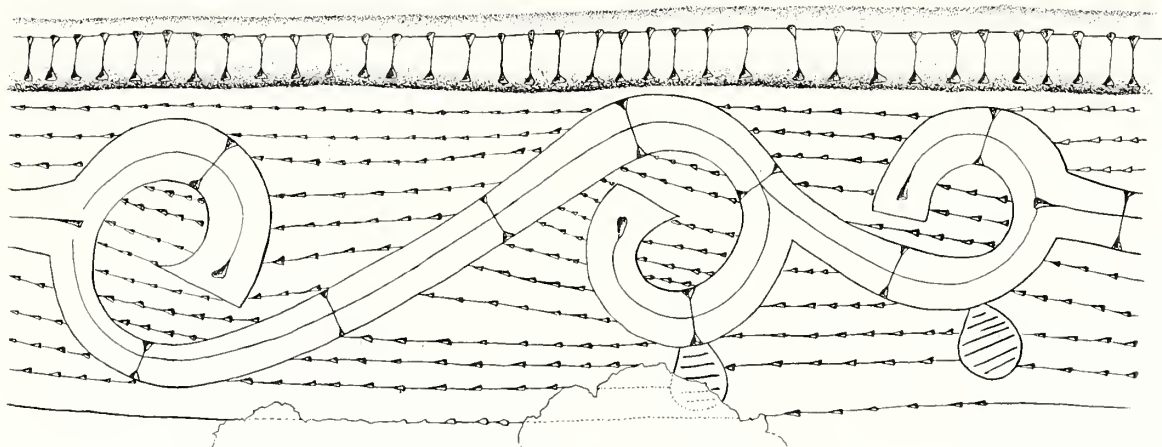


FIG. 19.—Vessel No. 2. Decoration. (About half size.)

Vessel No. 4.—A vessel of rather coarse, yellow ware, having a hemispherical body and a long, upright, cylindrical neck (Fig. 20), around which is an interesting incised and punctate decoration shown diagrammatically in Fig. 21.

Vessel No. 5.—An almost cylindrical vessel found in fragments, with certain parts missing. This vessel, which has been put together with some restoration (Fig. 22), bears an incised and punctate decoration with portions of the field covered with red pigment. This decoration, shown in diagram in Fig. 23, where the red is represented by stipple, is once repeated on the opposite side of the vessel.

Vessel No. 6.—A bowl of yellow ware, bearing incised decoration on a punctate field, the design being five times repeated (Fig. 24).

Vessel No. 7.—An imperforate vessel having five circular compartments, four being on one plane, the fifth rising above them centrally. The decoration consists of red



FIG. 20.—Vessel No. 4. Mound near Fullmore's Upper Landing. (Height 9.3 inches.)

pigment inside and out on the central compartment, and on the inside of the four lower compartments, which are smaller.

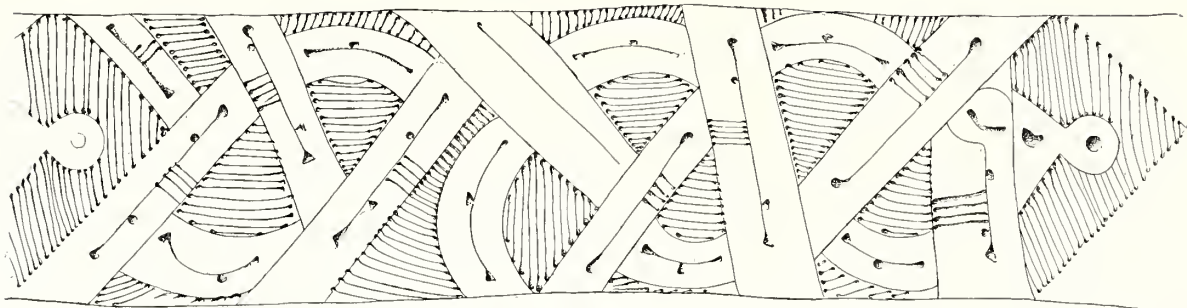


FIG. 21.—Vessel No. 4. Decoration. (About one-third size.)



FIG. 22.—Vessel No. 5. Mound near Fullmore's Upper Landing. (Height 10 inches.)

Vessels of this class, of course varying in detail, have been found by us in Florida along the northwestern coast from St. Andrews Bay to Cedar Keys; on lower St. Johns river; and on Apalachicola river. We have vainly sought to determine the use to which these vessels have been put. Their form might suggest receptacles for various pigments, but never have we found a deposit of paint remaining in a vessel of this class.¹

All vessels in the mound, so far as noted, with the exception of the compartment vessel, had the usual mortuary perforation.

With the exception of the earthenware deposit, no artifacts were met with in the mound.

MOUND BELOW COLUMBIA, ALA.

On the same side of the river and in full view from the water, is a mound about a mile and a half below Columbia, on property of Mr. W. L. Crawford, of that place. The mound, evidently built for domiciliary purposes,

¹ Mr. F. W. Hodge, to whom we are indebted also for careful literary revision of these papers, has contributed the following note:

"The Pueblo Indians make and use such as condiment vessels. They generally have two compartments—one for salt and one for chile—but there are cups with several such compartments. Similar vessels are used of course for paints of different colors."

has a height of 8.5 feet above the level of the field behind it. On the river side it rises in line with the bluff. Its general symmetry has been somewhat impaired by wash of water in flood-time, though it still presents an impressive appearance. Its

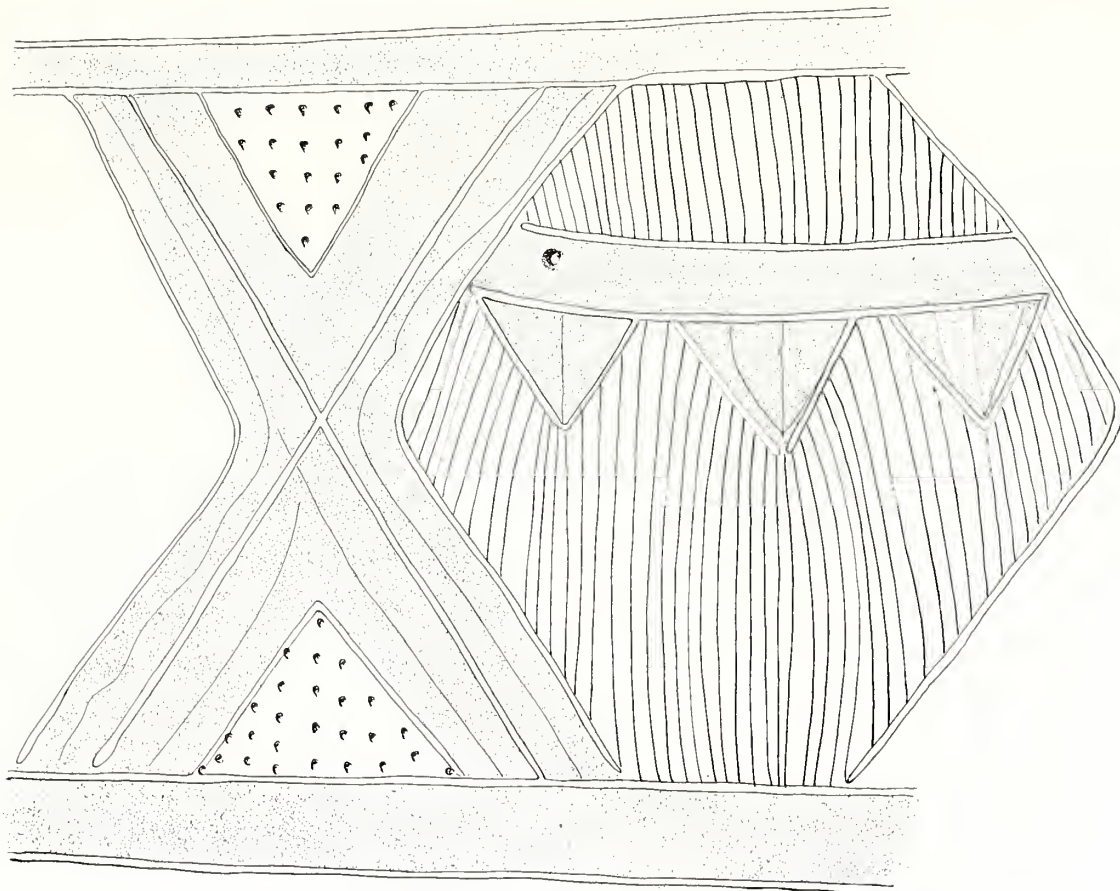


FIG. 23.—Vessel No. 5. Decoration. (About half size.)

length of base, N. by W. and S. by E., parallel with the river, is 138 feet. Its present width varies owing to wash of water in the past. Its base is 57 feet across at the northern end; 68 feet at the center; and 88 feet across the southern end. The summit plateau is 93 feet in length. Its width at the northern end, the middle, and the southern end, is, respectively, 23 feet, 34 feet, and 54 feet.



FIG. 24.—Vessel No. 6. Mound near Fullmore's Upper Landing. (Diameter 4.9 inches.)

As domiciliary mounds (of which class we judge this mound to have been) at times contain superficial burials, a number of trial-holes were dug in the summit plateau of this mound, with but negative results.

MOUNDS NEAR PURCELL'S LANDING, HENRY COUNTY, ALA. (4).

On the river bank, about one-half mile N. by W. from Purcell's Landing, on the plantation of Mr. Harrison Purcell, of Columbia, on which also are the three mounds subsequently to be described, is a remnant of a mound, parts of the mound having been washed away in time of freshet. Considerable digging showed this remnant to be partly of clay and partly of sandy clay, in which were numerous masses of rock. No artifacts or bones were discovered.

About one mile westwardly from Purcell's Landing, in a corn-field, is what is left of a mound which has almost disappeared under cultivation. Trial-holes produced no material result.

In a field which has been under cultivation, but now lies fallow, about one-quarter mile NNE. from the preceding mound, is another, much spread by the plow in former times. Its present height is about 2 feet. Trial-holes gave only negative result.

In woods, about one-half mile eastwardly from the mound just described is a rise in the ground hardly distinguishable above the general level, which was mostly dug away by us. No bones were encountered, but in the eastern margin where, doubtless, a burial had been, were several large fragments of pottery and two bowls of moderate size, one having a decoration of red paint, the other, punctate marking below the rim. Each had the customary mortuary perforation of the base.

MOUND NEAR PAULK'S LANDING, EARLY COUNTY, GA.

This mound was reported to us by our agent as being 200 yards from the river's bank and one-quarter mile in a NE. direction from the landing. The diameter was given as 80 feet; the height, as 5 feet.

The mound was not visited by us, as the owner put a high price on the privilege to dig it—a proceeding in marked contrast to that of most mound-owners with whom we have had to deal.

MOUND NEAR HOWARD'S LANDING, EARLY COUNTY, GA.

This mound, in a cultivated field, about one-quarter mile NE. from Howard's Landing, seems to be largely of clay. Its height is about 3 feet; its basal diameter, 75 feet approximately. In appearance, the mound greatly resembles a class of flat, circular, domiciliary mounds found on the Chattahoochee river and elsewhere. We did not deem it worth our while to offer any inducement to the owner, who seemed to be courting a pecuniary offer before permitting investigation.

MOUND NEAR COLOMOKEE CREEK, CLAY COUNTY, GA.

This mound, on the river bank, about 150 yards above Colomokee creek, had been greatly spread by cultivation. Its height is about 4 feet; its diameter, about 80 feet. The mound, which had been courteously placed at our disposal by its owner, Mr. J. C. Neves, of Fort Gaines, Ga., had many trial-holes dug into it by us, showing it to be mainly of red clay, and apparently a former dwelling site.

MOUND AT FORT GAINES, GA.

This mound, about 3.5 feet high and 90 feet across its circular base, is in the modern cemetery belonging to the town of Fort Gaines. Permission to dig it was granted us in a former season by Mr. J. Eugene Peterson, Acting Mayor of Fort Gaines, but the river at that time not being suitable for our steamer, our plans did not materialize. At the time of our visit, the permission given by Mr. Peterson was renewed by Mr. W. A. McAllister, Mayor of Fort Gaines, and by Mr. J. E. Paullin, President of the Cemetery Committee, all of whom expressed their willingness to permit the removal of a summer-house situated on the mound, should we find it necessary to do so.

A number of trial-holes, however, in many parts of the mound, showed it to be domiciliary in character.

MOUNDS NEAR STARK'S CLAY LANDING, CLAY COUNTY, GA. (2).

About one mile in an easterly direction from Stark's Clay Landing, in a cotton-field forming part of the plantation of Dr. J. T. Mandeville, of Fort Gaines, is a conical mound of sandy clay, the symmetry of which has been but little impaired by the spiral furrows left by cultivation. Rising from the level field, the mound, 126 feet in basal diameter and 18 feet in height, is a conspicuous object.

Previous to our visit a trench 12 feet wide, beginning part way up on the western side of the mound, had been carried in 23 feet, where it broadened into an oblong excavation 18 feet long by 15 feet wide. As much of the material had been thrown back by the diggers, the original depth of the trench could not be determined, but it must have been considerable.

Many trial-holes made by us, and considerable work in the former excavation, yielded neither bone nor artifact. No history was forthcoming as to any discovery made by former diggers. Presumably the mound was made for purposes other than that of burial.

A short quarter of a mile in a southeasterly direction from the mound just described is another, evidently domiciliary. This mound, on a slope, varies as to height. Probably 9.5 feet, the measurement as taken from the south, would be a fair average. The length of base is 230 feet, almost east and west; the width is 110 feet. The summit plateau is 146 feet by 74 feet. A number of trial-holes produced no material result.

MOUND NEAR GEORGETOWN, QUITMAN COUNTY, GA.

This mound, about a mile and a half in a southerly direction from Georgetown, in a cotton-field on the plantation of Mr. W. W. Green, of Gay, Fla., has been under cultivation for years and is greatly reduced in height. Its present altitude is 5 feet 4 inches; the diameter of its circular base, 100 feet. The surface is covered with camp-site debris, consisting of bits of pottery, flakes of chert, and the like. Although the mound had been long under cultivation, and, in addition, an upper portion had been carted away, it is said, we could learn from those in charge of no discovery of artifacts or bones. Trial-holes sunk by us were without result.

MOUND ABOVE EUFAULA, BARBOUR COUNTY, ALA.

About two miles above Eufaula, in view from the river, remains about half of what had been an oblong mound of red clay, with a flat summit plateau, the other part having been washed away during periods of high water. This mound, on property of Mr. H. Lampley, of Eufaula, was evidently domiciliary, as is indicated by its shape and by the negative result of a number of trial-holes dug by us.

MOUND NEAR UPPER FRANCIS LANDING, BARBOUR COUNTY, ALA.

This mound, near the northern side of Williams Lake, about one-half mile from Upper Francis Landing, was visited by our agent in advance of our coming. Its height is reported to be 13 feet; its basal diameter, about 100 feet. The mound was not investigated by us as the owner refused permission, though much influence was brought to bear.

MOUNDS NEAR ROOD'S LANDING, STEWART COUNTY, GA.

On the Rood plantation, about a mile and a half in from Rood's Landing, is a group of eight mounds, to some extent calling to mind the great earthworks at Moundville, Ala., though the mounds at Rood's Landing are much smaller, as a rule, and the circle around a central mound is incomplete, there being no mounds on the southern side, where a creek passes through the property.

These mounds, of the ordinary domiciliary variety, oblong, with summit plateaus, ranged between estimated heights of 7 feet and 20 feet, which latter is believed to be the altitude of the central mound.

Though the place has long been under cultivation, there is no history of the finding of artifacts, in which respect it greatly differs from the territory around Moundville, where for years objects of interest have been unearthed.

The owners of this plantation not only refused permission to dig even to the smallest extent, but practically declined to allow a survey, by prohibiting the cutting of branches of trees, without which proceeding lines could not be run; consequently we were unable to make an investigation of this interesting locality.

DWELLING SITE NEAR HALL'S UPPER LANDING, CHATTAHOOCHEE COUNTY, GA.

About one-eighth of a mile in an easterly direction from Hall's Upper Landing, on the property of Mr. W. C. Bradley, of Columbus, Ga., is a large, cultivated field, thickly strewn with signs of aboriginal occupancy, including very many pebbles and parts of pebbles; occasional chips of chert; fragments of pottery of excellent ware, as a rule, but undecorated, with the exception of the use of green paint in one instance and of red pigment in another; bits of glass; many parts of clay trade-pipes made for barter with later Indians; part of what had been a well-made pipe of soapstone; strips of brass; a triangular object of sheet-brass, probably an arrowhead; a silver button, etc.

Although no doubt a cemetery is present in some part of this property, careful sounding with iron rods failed to locate it.

MOUNDS NEAR WOOLFOLK'S LANDING, CHATTAHOOCHEE COUNTY, GA. (2).

About one mile ESE. from Woolfolk's Landing, on the plantation of Mr. B. T. Hatcher, of Fort Mitchell, Ala., are two small mounds closely associated, almost leveled by long-continued cultivation. Many trial-holes were without result.

MOUND AND CEMETERY AT ABERCROMBIE LANDING, RUSSELL COUNTY, ALA.

About 50 yards from the river's bank, at Abercrombie Landing, on the plantation of Mrs. Mary D. Hall, of Atlanta, Ga., is a mound 14 feet high, irregular in basal outline, presumably owing to cultivation of the surrounding area. Its diameters of base are 85 feet and 95 feet. Considerable digging failed to show the mound to be other than what it seemed to be, namely, a domiciliary mound.

Over the surface of the field surrounding the mound, debris from aboriginal occupancy was more thickly scattered than we recall having seen in any former experience. In addition to the usual pebbles and fragments of pebbles, we gathered a neatly-made little "celt;" part of a small stone pendant; bits of brass; a knuckle-bone of a deer; several discoidal stones shaped from pebbles; discs made from fragments of earthenware, etc. There were almost innumerable fragments of pottery, many of excellent shell-tempered ware, some of which was black. Some of the sherds bear incised decoration wrought with a rather broad point, but the designs are neither new nor especially striking.

In the level ground around the mound is a cemetery in which we found, from 1 to 2 feet in depth, skeletons, some loosely flexed, some lying at full length on the back. There were also aboriginal disturbances where the bones of a skeleton had been disarranged by a burial made at a later period.

The individuals whose skeletons were found by us evidently had experienced the advantage, or disadvantage, of contact with Europeans, as many of the artifacts buried with them clearly proved.

One skeleton had glass beads at the neck, and a bit of sheet-brass and a lump of hematite nearby; a steel or iron blade of a large knife on the body; a broad

chisel of iron or of steel on the pelvis; and an iron or steel axe a little to one side of the body.

Another skeleton at full length on the back had shell beads around the neck, which, probably, when strung, supported a disc of sheet-copper, 4 inches in diameter, having a central hole, and two perforations for suspension near the rim, which lay nearby. At an ankle and a wrist of this skeleton were a few shell beads. In the clay thrown out from the grave were two triangular sheet-brass pendants, and an annular ornament of the same material, 2 inches in diameter, and having an intervening space where the metal had broken between two perforations for suspension.

Another skeleton had a large number of small sea-shells (*Marginella apicina*)¹ pierced for suspension as beads.

Above the skull of a skeleton was a small slab of stone,² rounded to some extent, and four piercing implements of bone, three of which had the articular processes remaining. Below the skull was a triangular slab of stone and a large mussel-shell.

Near a skeleton was an earthenware pipe of ordinary form, undecorated and of most inferior ware.

Realizing that we had to do with burials of comparatively late Indians, we did not push the investigation of this place to the extent we would have done had the cemetery been of an earlier period. The mound we believe to antedate the post-Columbian burials near it.

MOUND AT MOUND LANDING, MUSCOGEE COUNTY, GA.

On property of Mr. J. Kyle, of Willet, Ga., in full view from the river, is the remnant of a mound which repeated floods have largely washed away. No investigation was attempted by us at this place, though the mound was courteously put at our disposal by the owner.

MOUNDS AND SITES INVESTIGATED ON FLINT RIVER.

MOUND NEAR LOG LANDING, DECATUR COUNTY, GA.

In high swamp, dry in low stages of the river, about one mile in a N. by E. direction from a log landing on the east side of Flint river, one mile approximately above its union with the Chattahoochee, is a mound on property of Mr. L. B. Edwards, of Chattahoochee, Fla.

¹ Kindly identified by Dr. H. A. Pilsbry, of the Academy of Natural Sciences of Philadelphia.

² As this object seems to be of small importance, we have not had the stone exactly determined. Incidentally, we may say that exact determination of many rocks demands chemical analysis and the making of slides for microscopic examination. Even then, exact determination is not always arrived at. Determination by inspection alone is a snare. We once submitted to a well-known expert dealer twelve "celts," each marked with a number, and carefully registered the determinations, all which were based on inspection only. Later, the identical twelve "celts" were resubmitted to the same expert who believed them to be a different lot. The determinations of but four coincided with those previously given.

The mound, of sandy clay, about 3.5 feet in height and 50 feet across its circular base, was dug by us to a width of from 3 to 4 feet around its marginal part. In addition, thirteen trial-holes were sunk into the remaining portion. No bones were encountered.

In the soil was the upper part of a so-called hoe-shaped implement which had been broken transversely in a line with the perforation.

Just below the surface of the mound was an undecorated bowl of inferior ware, having a flat, imperforate base. Within the bowl were fragments of shells and a soapstone pipe, undecorated, of a common type, which has a bowl about equaling in size the part intended to hold a stem, both parts being about square in transverse section.

We regarded this bowl and its contents as a cache in a domiciliary mound.

MOUND NEAR MUNNERLYN'S LANDING, DECATUR COUNTY, GA.

This mound, of sand, 2 feet 9 inches in height and 50 feet across its circular base, on property controlled by Mr. H. C. Allen, of Bainbridge, Ga., was in an old field about one-quarter mile in a southerly course from Munnerlyn's Landing.

The mound, which was completely dug away by us, with the exception of a portion around a small fruit tree, had sustained practically no digging previous to our visit, but evidently had been spread somewhat by cultivation. However, as none of the sixteen burials met with by us in the mound was less than one foot from the surface, it is not likely that any material damage had been wrought by the plow. Some of the skeletons were too badly decayed to enable determination of the form of burial; some indicated a close flexion.

Near a burial was a fragment of a soapstone vessel, worked into an ellipsoidal form, 4.25 inches in length. Below the skull of another burial was the lower part of an earthenware vessel; otherwise, the burials, two of which lay near deposits of charcoal, were not associated with artifacts. Apart from human remains lay: a "celt;" a rude cutting implement of chert; several chips of chert, singly; and a deposit of small masses of chert.

A few feet in from the eastern margin of the mound began a deposit of earthenware, including many small fragments of various vessels, some large parts of vessels, and several entire ones. The ware of all is inferior. Tempering with gravel or with shell is not present. Parts of one vessel show an exterior coating of red paint; the small check-stamp was encountered once; incised or punctate decoration is unrepresented. Several vessels and parts of vessels bear faint, complicated-stamp decoration. Two large fragments have this form of decoration more distinctly marked, one bearing a design showing the human eye (Figs. 25, 26).

Two vessels, the only ones presenting any divergence from ordinary forms, have flat, square bases with pronounced corners serving as feet.

Two small, undecorated vessels were found together, apart from the ceremonial deposit of earthenware and, like all vessels and large parts of vessels from this mound, bear the basal, mortuary perforation.

MOUND NEAR KERR'S LANDING, DECATUR COUNTY, GA.

This mound, circular in outline, almost entirely of sand, with a height of 5 feet 2 inches, a basal diameter of about 62 feet, in a field formerly under cultiva-



FIG. 25.—Sherd. Mound near Munnerlyn's Landing. (Half size.)

tion, forming part of the plantation of Judge B. B. Bower, of Bainbridge, is about 2 miles in a southeasterly direction from Kerr's Landing, and about 5 miles below Bainbridge. A deep excavation about 30 yards west of the mound showed whence its material had come.



FIG. 26.—Sherd. Mound near Munnerlyn's Landing. (Height 8.4 inches.)

The mound, which had been considerably dug into before our visit, was entirely leveled by us with the exception of parts around four trees. Near the center of the base was a former fireplace with considerable charcoal remaining.

Human remains, encountered in twenty-five places, were all so badly decayed that the form of burial was evident in but few instances. The closely-flexed form, however, was represented in some cases, as also probably were bunched burials.

With one burial was a "celt" of volcanic rock, 6 inches in length—the only artifact found in direct association with the dead. With another burial was a mass of material, 8 by 8 by 5 inches, determined by Dr. Harry F. Keller to be "clay mixed with a

few per cent. of carbon in the graphitic form, as well as some coarser and finer grains of quartz sand." "The particles of carbon," says Doctor Keller, "are very fine and pretty thoroughly disseminated through the mass."

With some burials was sand colored with hematite; with others, charcoal.

Not found directly with burials were: two arrowheads or knives, of chert; several flakes of the same material; two masses of galena (lead sulphide) from the carbonate deposit occurring on which the aborigines made white-lead paint; a few scattered sherds; a large deposit of earthenware.

This deposit, beginning near the eastern margin of the mound, as usual, covered a considerable area and extended a number of feet toward the center. It consisted mainly of a great number of fragments of vessels, several hundred at least, and represented parts of many vessels, none of which, so far as we could determine, had a full complement of fragments present. Of course, the determination of the number of fragments of a vessel which may be in a mound is more difficult when a vessel is undecorated or bears a check-stamp decoration, as identifications of adjacent parts is less readily made in such cases than when distinctive decoration aids the investigator. However, it is entirely possible that parts of decorated vessels even escaped our vigilance by being thrown back by shovels with sand, for when sherds are widely scattered, one lying here and one there, the whole area in which they lie cannot be passed through a sieve as can be done and is done by us when fragments of vessels lie more closely together.

Beside the small check-stamp, which greatly predominated, the forms of decoration present on the ware were: a few examples of the complicated stamp, faintly impressed; the cord-marked; several designs with red paint; a few interesting patterns, sometimes incised, sometimes neatly made with the impress of a point or, in some instances perhaps, of a roulette.¹

Gritty ware was sparingly represented; no shell-tempered ware was found. Here and there in the deposit, farther in than were most of the fragments, were several whole vessels and large parts of vessels. All these had mortuary perforation of base, which was apparent also on many fragments.

Certain sherds had belonged to vessels bearing feet.

Entire vessels and large parts of vessels from this mound will be described in detail:

Vessel No. 1.—The greater part of a bowl which had been surrounded below the rim by a band of rather rudely-executed, incised decoration.

Vessel No. 2.—A pot of inferior ware having a rather faintly-impressed, small check-stamp.

Vessel No. 3.—A bowl of yellow ware, undecorated save for a single, incised line immediately below the rim.

Vessel No. 4.—A bowl of inferior material, rudely decorated with incised, parallel lines below the margin.

¹ "Aboriginal Pottery of Eastern United States," W. H. Holmes, Fig. 43. Twentieth Ann. Rep. Bur. Am. Ethnol., 1898-99.

Vessel No. 5.—A large part of a bowl which has since been somewhat restored, though no part of this restoration shows in the reproduction (Fig. 27). The punctate design, beautifully executed, which is shown in the illustration, appears four times on the vessel. In the base are two carefully-made, circular, mortuary perforations, side by side. Such duplication of the mortuary mutilation is unusual.

Vessel No. 6.—A vessel of excellent, yellow ware, graceful in form (Fig. 28), having an interesting, incised decoration shown diagrammatically in Fig. 29.



FIG. 27.—Vessel No. 5. Mound near Kerr's Landing. (Diameter 10.6 inches.)

Vessel No. 7.—Similar to Vessel No. 6 as to ware and shape, but without decoration. With this were the decaying remains of a large conch (*Fulgur perversum*). Vessels Nos. 6 and 7 were found together somewhat farther toward the center of the mound than the general deposit of earthenware.

Certain vessels have been made up with partial restoration, from fragments present in the mound, as follows:

Vessel No. 8.—A pot of inferior ware having for decoration on the upper part rudely-incised, parallel lines crossed by parallel, diagonal ones.



FIG. 28.—Vessel No. 6. Mound near Kerr's Landing. (Height 7.7 inches.)

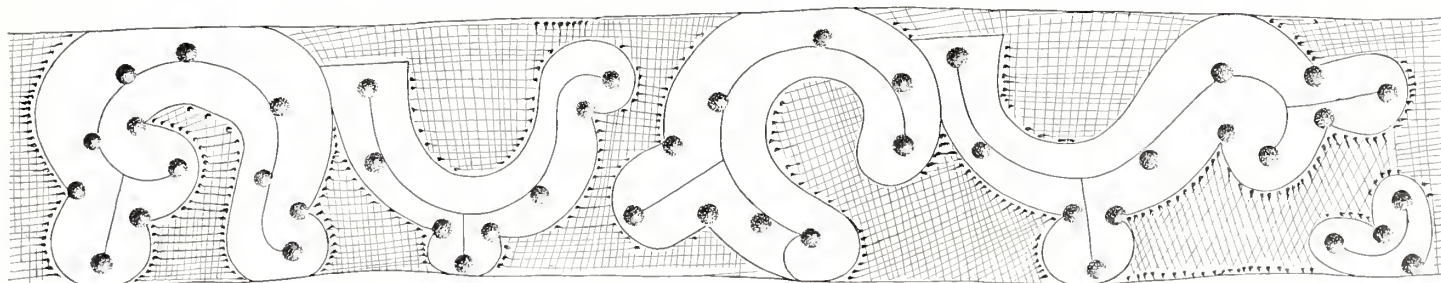


FIG. 29.—Vessel No. 6. Decoration. (About one-third size.)

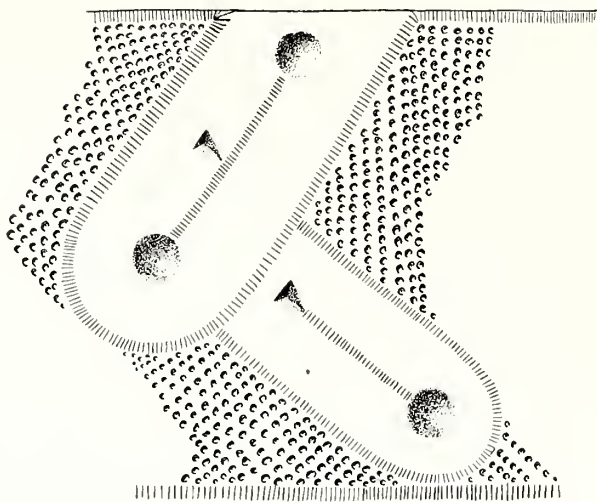


FIG. 30.—Vessel No. 10. Decoration. (About two-thirds size.)

Vessel No. 9.—A dish or platter, 8 inches square, having a slightly concave base, and two knobs on opposite sides, rising above the rim. There has been a decoration consisting of broad bands of red pigment, which we have been unable to restore owing to the absence of the central part of the dish.

Vessel No. 10.—A bowl of excellent ware having a carefully-executed, punctate design, shown in Fig. 30, a number of times repeated.

Two sherds from this mound are shown in Figs. 31, 32.

BURIAL PLACE ON THE CHASON PLANTATION, DECATUR COUNTY, GA.

The Chason Plantation, belonging to Dr. Jefferson D. Chason, of Bainbridge, is on the eastern side of Flint river, about 3.5 miles below the city named. A slight rise in the ground in a cotton-field forming part of the plantation was reported



FIG. 31.—Fragment of vessel. Mound near Kerr's Landing. (Half size.)

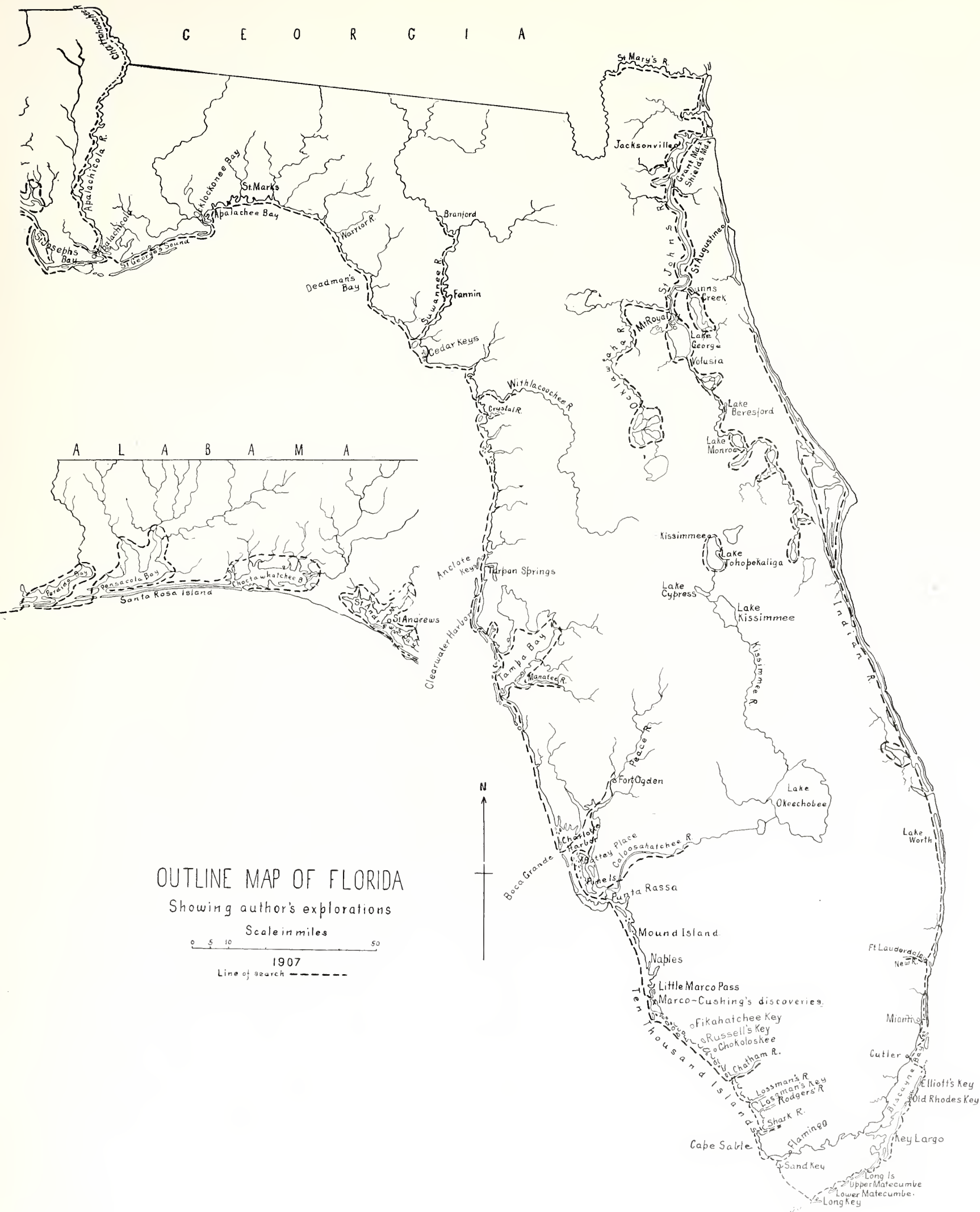


FIG. 32.—Sherd. Mound near Kerr's Landing. (Half size.)

to be the spot where two earthenware vessels on exhibition at Bainbridge had been found.

Trenching and careful sounding with iron rods over the whole surface of the higher ground resulted in the discovery of two decaying skeletons and part of an earthenware vessel.

G E O R G I A



OUTLINE MAP OF FLORIDA

Showing author's explorations

Scale in miles

0 5 10 50

1907

Line of search - - - -

NOTES ON THE TEN THOUSAND ISLANDS, FLORIDA.

BY CLARENCE B. MOORE.

The Ten Thousand Islands, which have been twice visited and twice written of by us,¹ were again the subject of our investigation during two seasons, the winter of 1906 and the winter of 1907. These islands (see accompanying map) fringe the coast of southwestern Florida for about 80 miles, along parts of the counties of Lee and Monroe, between the settlement known as Naples on the north and Cape Sable on the south.

In a former report we have spoken of Little Marco as the northern limit of the Ten Thousand Islands, but as the coast is bordered by small keys to Naples, about nine miles farther north, and as this place can be reached by an inside water-route, the most intelligent inhabitants of the Keys now speak of the Ten Thousand Islands as beginning at Naples.

Little Marco, it should be said, is not a key, but a settlement on the mainland, not far from Key Marco. The island next above Marco is not named Little Marco, but is known as "The Beach."

The settlement of Marco, at the northeastern extremity of Key Marco, the most important key of the Ten Thousand Islands, was again visited by us and a careful search made of all the shell territory adjacent. Near Marco we examined a section of a heap composed partly of shell and in part of kitchen refuse and the debris of fires, the last consisting of fine ash containing fish-bones, etc. In this midden refuse were numerous fragments of pottery of rather inferior ware, some bearing a simple incised decoration, others the imprint of cord. No doubt the key-dwellers used pottery only to a limited extent.

Among objects obtained by us at Marco were many pendants, two of which, of limestone, and two of shell, are shown in Figs. 1, 2, 3, 4.

As we have written in former reports, we gravely doubt that the grooved objects of shell and of stone, known as "plumb-bobs," among the keys, of which such great numbers have been found there, were used as sinkers for lines or fish-nets, though some are so coarsely made as to seem unfitted for ornament. Mr. Cushing,² among his wonderful discoveries at Marco, found fish-nets with sinkers in place, but none was in the form of the pendants found among the keys, while lines had sinkers of *Turbinella* shells with the whorls rudely battered off. The pendants are not found chiefly near the water, but distributed over such of the keys as have

¹ "Certain Antiquities of the Florida West-Coast." Journ. Acad. Nat. Sci. of Phila., Vol. XI, 1900.

"Miscellaneous Investigation in Florida." Journ. Acad. Nat. Sci. of Phila., Vol. XIII, 1905.

² "Preliminary Report on the Exploration of Ancient Key-Dweller Remains on the Gulf-Coast of Florida," by Frank Hamilton Cushing. Proceedings of the American Philosophical Society, Vol. XXXV, No. 153, p. 38, 1897.

aboriginal deposits of shell; some are too handsomely made to have served a utilitarian purpose; while one in our possession is of a coralline material so light that it hardly sinks in water. We found in the cemetery and mound near Crystal River,¹ Florida, in place on a skeleton, a number of stone pendants associated with others made of copper. We believe these pendants from the keys served some ornamental or ceremonial purpose—perhaps they were “charm-stones.” It is true, as we have said, that many of the stone pendants of the keys are crude, but much of the stone of that locality is not of a character conducive to good workmanship.



FIG. 1.—Pendant of limestone. Marco, Key Marco. (About full size.)



FIG. 2.—Pendant of limestone. Marco, Key Marco. (About full size.)



FIG. 3.—Pendant of shell. Marco, Key Marco. (About full size.)



FIG. 4.—Pendant of shell. Marco, Key Marco. (About full size.)

Two interesting pendants from Marco probably represent ducks' heads. One (Fig. 5) is of a hard stone not found in Florida, but we have not wished to mutilate it for exact determination. The other, of limestone, is shown in Fig. 6. These pendants are another of the indications of the high esteem in which the duck was held by the ancient southern Indians.



FIG. 5.—Duck-head pendant. Three positions. Marco, Key Marco. (Full size.)

A circular ornament of shell from Marco, and a curiously-shaped pendant of limestone from the same place, are shown in Figs. 7, 8, respectively.

¹ “Certain Aboriginal Mounds of the Central Florida West-Coast.” Journ. Acad. Nat. Sci. of Phila., Vol. XII, p. 99, 1903.

Occasionally in the shell debris at Marco were "chipped and notched fragments of heavy clam-shells," like those found by Cushing¹ on nets in the muck at Marco; while a fossil-shark's tooth, beveled and showing signs of use, probably as a knife, was picked up by us in the shell debris of a cultivated field. Teeth of sharks, though fossil



FIG. 6.—Duck-head pendant. Three positions. Marco, Key Marco. (Full size.)

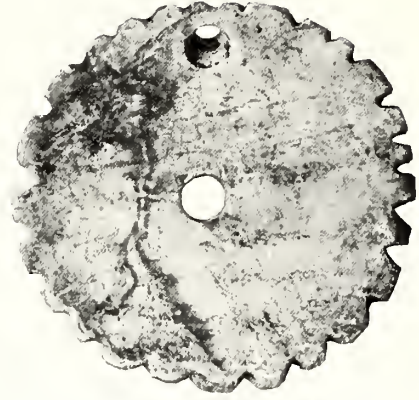


FIG. 7.—Ornament of shell. Marco, Key Marco. (About full size.)

sharks are not specified, were found by Cushing,² set in handles for use as carving tools.

We got also at Marco—and the inhabitants say that many have been gathered from the surface near there—a fragment of clam-shell wrought on one side to a

very sharp cutting edge (Fig. 9). These probably were hafted as knives or, perhaps, were the blades of small hand-adzes, as described by Cushing,³ though "little blades made either from bits of shell,

the sharp ventral valves of oysters," and not clam-shells, are mentioned by him.

While at Marco we visited Little Marco; McIlvaine's Key; Addison's Key; and the Crawford place, northward toward

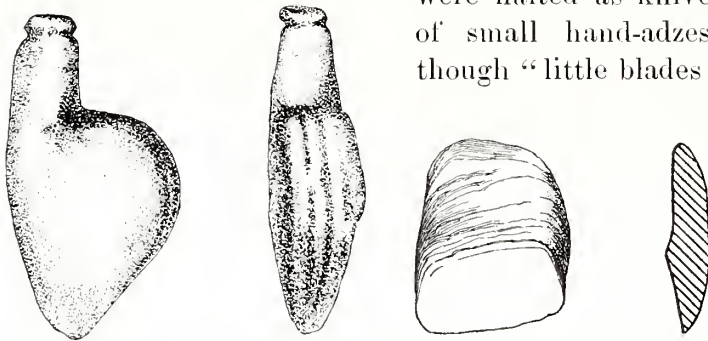


FIG. 8.—Pendant. Two positions. Marco, Key Marco. (Full size.)



FIG. 9.—Chisel blade and section. Marco, Key Marco. (Full size.)

Naples—all noteworthy, aboriginal shell deposits.

A number of interesting objects came from Goodland Point. Key Marco, among which is a gorget of shell (Fig. 10) with the aboriginal sign of the four directions.

A pendant from the same place (Fig. 11), made from fossil bone or from some coral material (we have not wished to cut into the specimen to determine it), bears an incised design on each of the four sides—two showing the eye; one, a mouth or jaws; and one being indistinguishable. Three of these designs are shown in diagram in Fig. 12.

¹ *Op. cit.*, p. 38.

² *Op. cit.*, p. 42.

³ *Op. cit.*, p. 41.

Fikahatchee Key, and Russell's Key, large shell islands, yielded specimens of aboriginal work.

Chokoloskee Key was visited with good results. Among various objects obtained there was a gorget wrought from a considerable portion of a shell (somewhat similar to the shells we found in the great place of burial near Crystal River, Florida), which resembles a shallow



FIG. 10.—Gorget of shell. Goodland Point, Key Marco. (Full size.)



FIG. 11.—Pendant. Goodland Point, Key Marco. (About full size.)

drinking-cup and might be taken for such an object were it not for two holes for suspension bored well below the margin.

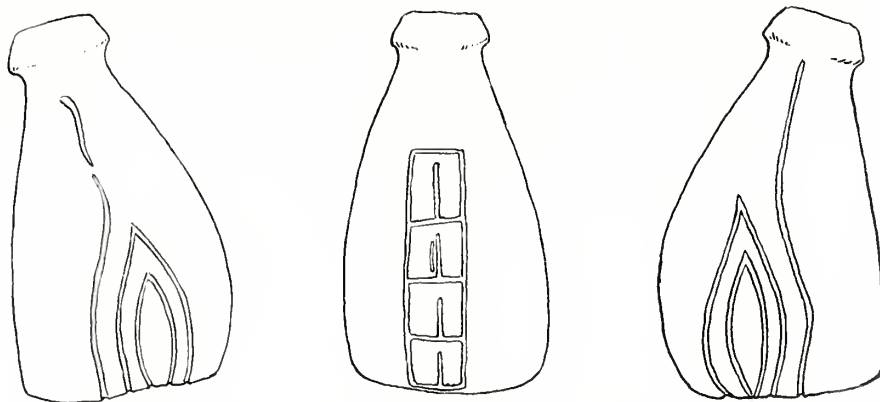


FIG. 12.—Incised decoration on pendant. Goodland Point, Key Marco. (Full size.)

An interesting object from Chokoloskee Key, a massive pick 6.7 inches in length and 1.25 inches in maximum thickness, wrought from the lip of *Strombus*

gigas, is shown in Fig. 13. Much splintering at each end testifies to the amount of service to which this implement has been subjected. It is our belief, strengthened by the result of inquiry, that this shell implement is unique, though similarly shaped picks of stone are met with.

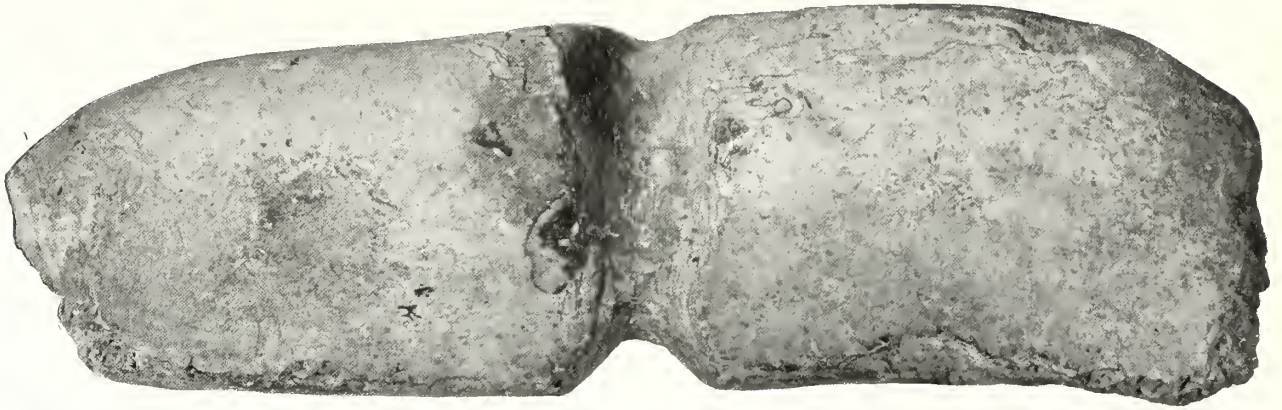


FIG. 13.—Pick-axe of shell. Chokoloskee Key. (Full size.)

A pendant from the same place is a carefully-made imitation, wrought from shell, of a canine tooth of a large carnivore. So well executed is this imitation that at first glance one might well be deceived and mistake it for a tooth in reality (Fig. 14).

Also from Chokolos-



FIG. 14.—Pendant of shell. Chokoloskee Key. (Full size.)



FIG. 15.—Pendant of stone. Chokoloskee Key. (About full size.)



FIG. 16.—Pendant of shell. Chokoloskee Key. (About full size.)

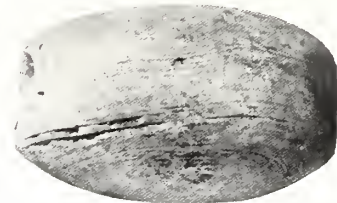


FIG. 17.—Bead of shell. Chokoloskee Key. (About full size.)

kee Key came a pendant of a hard stone from a region to the north of Florida (Fig. 15); a pendant of shell (Fig. 16); a well made bead of shell (Fig. 17); an ornament of shell with the incised sign of the four directions (Fig. 18).

A rude effigy of a human head (Fig. 19), carved on a fragment of pumice stone, was picked up on Chokoloskee Key by a thoroughly reliable person long known to us, from whom we obtained it. This effigy has every appearance of being aboriginal work.

Lossman's Key, near Cape Sable, one of the largest keys of the Ten Thousand Islands, was again visited by us and its two shell deposits—one more than ten acres in extent—were carefully examined. The larger deposit, rich in aboriginal implements, has been recently cleared of the hammock growth formerly upon it. While there we almost walked upon the wires of a loaded spring-gun set for deer or panther—one of the chances one takes in exploring this wild and lawless region.

The reader of our former reports on the Florida Keys may recall that in the shell deposits there are many implements wrought from entire shells. These implements, sometimes whole, but much oftener broken or greatly worn, lie among great numbers of unwrought conchs and other shells, as is well shown in the picture of a cultivated field on Chokoloskee Key (Fig. 20).

In our search for these implements we were constantly aided by the inhabitants—especially by children who, laboring in hope of substantial reward, had put aside, to await our coming, all desirable shells found on the surface or turned up by the plow. In this way, by our own efforts and by those of others we accumulated a very large collection of implements. These implements we believe to have served mainly as chisels, gouges, adzes, scrapers, hammers, and grinders, and especially as hoes and picks in the cultivation of the soil. These picks and hoes were used with fairly short handles, those employing them assuming a squatting position, after the manner of less-advanced peoples at the present time when cultivating the ground.

The results of our two seasons' labors were added in part to our collection in the Academy of Natural Sciences in Philadelphia and in part were sent to various museums in this country, in South America, and in Europe.

Before describing new types of shell implements found by us in our last two seasons' work, we wish to correct an error into which we have fallen. In a former report¹ we say, "There is a small hole above the shoulder, or periphery [of the shell], which seems, as a rule, to have had no



FIG. 19.—Head of pumice stone. Chokoloskee Key. (2.2 inches high.)

connection with the tool, inasmuch as numbers of shells, not made into implements, show a similar perforation, which may have been made to sever the muscle and free the shell-fish from its shell."



FIG. 18.—Ornament of shell. Chokoloskee Key. (About full size.)

¹ "Miscellaneous Investigation in Florida," page 316. Journ. Acad. Nat. Sci. of Phila., Vol. XIII, 1905.



FIG. 20.—A field on Chokoloskee Key.

While it is true that some conch shells (more from some localities than from others) which have no hole or holes in the body-whorl for the insertion of a handle, and do not seem to have served as tools, have a small hole above the shoulder, or periphery, it is equally true that a large proportion of the shells found on the keys do not have this hole, and, as the contents of these shells were brought to the keys as an article of food, it is clear that a hole above the shoulder, or periphery, was not necessary to separate the shell-fish from the shell.

Cushing,¹ who found in place in the muck at Marco shell implements pierced for handles, speaks of them as follows: "Thus the stick or handle could be driven into these perforations, past the columella in such manner that it was sprung or clamped firmly into place. Nevertheless it was usually further secured with rawhide thongs—now mere jelly—passed through one or two additional perforations in the head, and around both the stick and the columella."

This hole above the shoulder is not always present, however, even in shells which are distinctly tools, with chisel-edge and holes, or a hole and a notch, for the insertion of a handle. This hole for the thong is absent in a small percentage of these tools among the islands generally, while at McIlvaine's, a small shell key² about two miles to the northeast of the settlement of Marco, a score of implements, all that were found by us of the class we have mentioned, had no hole above the shoulder of the shell.

We shall now describe in detail some of the most interesting shell implements obtained by us since the publication of our last report.

An interesting type from Marco is a pick wrought from *Fasciolaria* (Fig. 21), doubtless used in cultivating

¹ *Op. cit.*, p. 40.

² The reader will bear in mind that a very small proportion of the keys of the Ten Thousand Islands bear evidence of aboriginal occupancy.



FIG. 21.—Shell pick. Marco, Key Marco.
(Length 11.7 inches.)

the soil. These picks are seldom found entire, though implements of the same shell with the columella much worn away are abundant. It is likely that picks, after a certain amount of wear, were used as hammers.

The next implement to be considered, a heavy *Fulgur perversum* of moderate size, differs from types heretofore described in that there is a hole for the handle, back of the columella, and a notch on the right as shown in Fig. 22, illustrating a



FIG. 22.—Implement of shell. Mellvaine's Key. (Height 5.5 inches.)

specimen from Mellvaine's Key. Usually when a notch is present it is on the left of the shell. A number of examples similar to the one shown in the figure, however, were met with by us on Mellvaine's Key and elsewhere. There is no hole in the upper part of the shell for a thong or fiber to pass through, and none is needed in this instance as attachment can be made directly to the columella.

An interesting implement is a *Fulgur perversum* with no perforation for a handle below the shoulder, or periphery. There is, however, in addition to the

usual small hole for attachment, a large one above the shoulder, a feature often found on the eastern coast of Florida, but seldom on the western coast. This tool, which came from Fikahatchee Key, perhaps was used like a spade the handle extending straight upward; or possibly the shell was placed at right angles to the handle which crossing the top of the shell entered the hole obliquely and was made fast with a thong.

An implement (Fig. 23) from Goodland Point, Key Marco, has no hole of any sort and consequently no inserted handle was used in connection with it. The upper, and heavier, part of the shell shows great wear, but as the beak is intact, bearing no trace of a cutting edge or of any use whatever, it is evident the tool was not used with the upper part held in the hand and the lower part to cut as a chisel, or to loosen the soil as a pick, as some tools closely resembling this one certainly were used. Therefore, we are inclined to believe the tool to have been employed as a kind of hammer or grinder, but as there is no evidence of chipping or battering, presumably it served in connection with some comparatively soft material, such as Indian corn.

An implement (Fig. 24), wrought from *Fasciolaria*, is greatly cut away for convenience to the user and has a notch to the right and another to the left for the attachment of a handle. At Lossman's Key, from which this implement came, it was noted that a double notch was used more often than a hole and a notch or a double hole for the handle.

As we have said before in this report, the small hole, or sometimes two holes, in the shell above the shoulder, or periphery, through which thongs or fiber bound the handle more firmly, were not always employed. Almost invariably when these holes



FIG. 23.—Shell implement. Goodland Point.
(Length 11.35 inches.)

for attachment were not made above the shoulder, they were dispensed with, though in a few cases they are found in the body of the shell. A small number of such instances have come to our notice, and there is in our collection at the Academy of Natural Sciences a good example from Fikahatchee Key, where a shell with a fine



FIG. 24.—Shell implement. Lossman's Key.
(Length 6.2 inches.)

gouge edge, and a hole and a notch to accommodate a handle, has a small, round perforation in the body-whorl—too small to have served for any purpose except for the passage of a thong.

Two shells (*Fulgur perversum*) added to our collection since the last report, differ from ordinary types in that while both have edges beautifully ground at the beaks, and each has a part of the body-whorl cut back from the aperture, neither shell bears hole or notch for the accommodation of a handle. One implement, however, has a hole for attachment above the shoulder of the shell, while the other is without one. These implements came respectively from Little Marco and the Crawford Place, below Naples.

As to another class of shells we are unable as yet to reach a decision. These shells, sparingly found on the Ten Thousand Islands, were fairly numerous on Wason, or Cora Key, in Pine Island Sound, north of the Ten Thousand Islands. The shells (*Fulgur perversum*) are carefully cut back from the aperture as if for use as tools and have above the shoulder usually one small hole, but sometimes two, for attachment. In certain cases some of these holes seem to bear evidence of wear.

On the other hand, in no instance do these shells have any hole or notch through which a handle may be passed. The beaks are considerably chipped as if by use, but above the splintered part is no sign of the remainder of the ground surface, which is so often apparent on other tools, though they have been subjected to prolonged use. It is possible these shells were used as tools with the aid of a handle abutting against the inside of the body-whorl, the thong extending over the outside of the shell. Presumably the beaks were not ground prior to use, the implements serving as picks with unground beaks, as was the case with the large "horse-conchs" (*Fasciolaria*), one of which is shown in this report (Fig. 21).

On all the shell keys, and notably on Fikahatchee Key, we found masses of sandstone, smoothed and furrowed by use. These stones, we believe, were those used in conferring cutting edges on the shell tools of the keys.

Fig. 25 shows an ordinary southern, round clam-shell (*Venus mortoni*) from Fikahatchee Key, with a circular hole knocked from the inside through the central part of the shell or, perhaps, a little above it. Clam-shells of this kind, of which we obtained thirteen,—twelve from Chokoloskee and one from Fikahatchee,—usually show considerable wear on parts of the edge, though the shell in the illustration, probably almost an unused tool, shows but little sign of use. There seems to be, however, no evidence of wear on the sharp edges within the holes, which fact makes it still more doubtful how these shells were used, though no doubt the purpose for which they were employed was the cultivation of the soil. In “Art in Shell”¹ we see suggested various methods of hafting perforated shells.

Cushing says:² “Large clam-shells, deeply worn at the backs, as well as showing much use at the edges, seem to have served both as scrapers and as digging implements or hoes; for some of them had been hafted by clamping curved sticks over the hinge and over the point at the apex, or umbo—where it showed wear” . . . No reference is made by him to holes in these shells, and in point of fact repeated search made by ourselves and by the juvenile population of Marco³ failed to discover at that place a single perforated clam-shell of the variety in question.

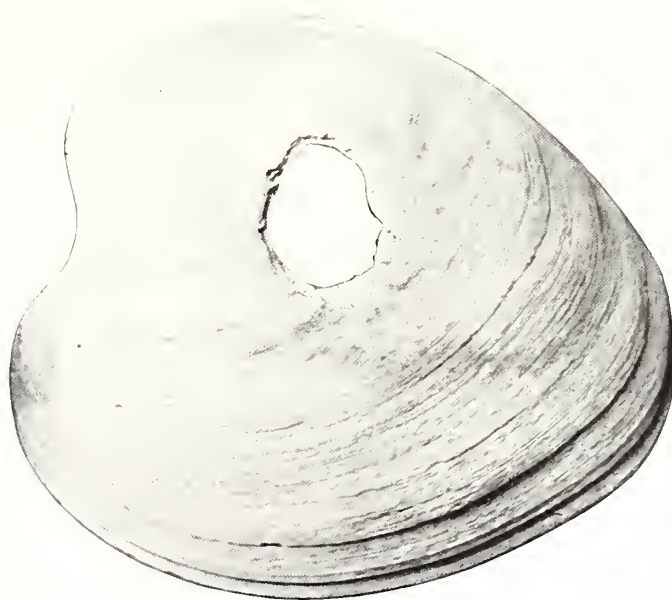


FIG. 25.—Shell implement, Fikahatchee. (Length about 5 inches.)

Cushing,⁴ however, speaks of varieties of *Pectunculus* (which is a kind of clam) as having served as scrapers and shavers, and being “perforated at the apices, in order that a loop might be attached to them to facilitate handling,” and also describes (p. 42) a variety of *Arca* shell, three and one-half or four inches long, through the aperture of which a strip of bark was passed in a way to afford an excellent grasp. Probably it was in this manner our clam-shells were used and the comparative absence of wear in the holes is owing to the soft character of the fiber.

One feature connected with the thirteen clam-shells found by us is of especial interest. Of these shells twelve are left valves, having the umbo, or beak (which in the case of the clam is above the heavy hinge-piece) turning to the right of the user, thus making it perhaps a trifle easier for a right-handed person to grasp in connection with a band. In the case of the remaining shell, a right-hand valve,

¹ W. H. Holmes. Rep. Bur. Am. Ethn., 1880-81, pp. 206-207, plate XXVI.

² *Op. cit.*, p. 40.

³ Marco was the principal scene of Mr. Cushing's labors.

⁴ *Op. cit.*, p. 42.

the beak turns to the left of the user, and probably was selected by a left-handed individual.

In Fig. 26 is shown a shell (*Codakia orbicularis*) which has been an implement of some sort. This shell was dug by us from one of the great ash-heaps on Chokoloskee Key, which there and on certain other keys seem to be the remains of fires long continued.

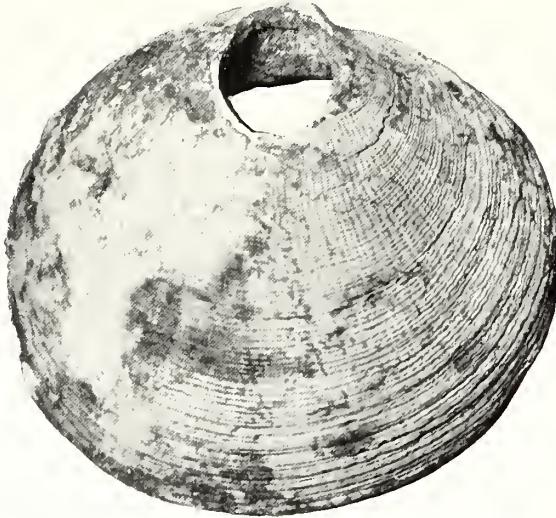


FIG. 26.—Shell implement. Chokoloskee Key.
(About full size.)

Spread over the shell keys are considerable numbers of shells (*Arca ponderosa*), many with a hole below the hinge, as shown in Fig. 27.

Cushing (p. 38) speaks of nets having "sinkers made from thick, roughly perforated umboidal bivalves, tied together in bunches," no doubt referring to the *Arca ponderosa* shell.

The number of these shells having holes, when found on the shell keys, greatly preponderates over those that

do not have a perforation, in which they greatly differ from the conchs and other large shells found on the keys. The reason for this is plain. The larger shell-fish were selected for food primarily, and the shells of only some of them were subsequently used as tools. The *Arca*, on the other hand, is small and moreover is found in comparatively deep water when alive. Presumably conditions were such that the *Arca* was not sought as food and the supply of shells needed for tools came from the beaches. In this event a very large proportion of the shells carried to the keys would be perforated for use.

Many of the *Arca ponderosa* shells in our possession show decided wear on the edges, which leads us to believe they were used as diminutive scrapers. Probably *Arca* shells were employed for different purposes—for tools as well as for net-sinkers.



FIG. 27.—Perforated *Arca* shell.
Little Marco. (Length 2.15 inches.)

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